

**Old Moreau Dredge Spoils Area/
New York State Canal Corporation Site
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Old Moreau Dredge Spoils Area/ New York State Canal Corporation Site

2 Phase I Environmental Site Assessment

2.1 Site Location, Description, and Environmental Setting

The Old Moreau Dredge Spoils Area/New York State Canal Corporation (NYSCC) Final Candidate Site (FCS) is located in the Hudson-Mohawk Lowland physiographic province. The topography of this province has been produced primarily by erosion along outcrop belts of sedimentary rocks that lie between the Catskills and the metamorphosed shale hills of the Taconics. The province generally has low relief and elevation and is underlain by Ordovician shales that have been exposed by the erosion of Silurian and Devonian limestones (University of the State of New York 1966). The site comprises two parcels of different ownership. Site photos are found in Appendix A.

2.1.1 Old Moreau Dredge Spoils Area

The Old Moreau Dredge spoils disposal area (Old Moreau) covers approximately 31.6 acres and is currently undeveloped. The Old Moreau parcel is located in the town of Moreau, Saratoga County, New York, on the west side of Hudson River (at approximately river mile 193.8) (see Figure 2-1). The property is owned by Georgia Pacific. About 70% is open or lightly vegetated, and the remainder is wooded. Topography is relatively flat, but there is a 10-foot drop-off along the waterfront. The waterfront is undeveloped and consists of a sand beach approximately 5 to 10 feet wide. A landfill area located in the southwestern portion of the parcel (i.e., the Old Moreau dredge spoils disposal site) is somewhat raised and contains a drainage ditch at the toe that leads to the river. Rust-colored staining was observed in a small section of the ditch. The landfill contains PCB-contaminated dredge spoils from the river. Surficial trash, bulk plastic, and other debris (car parts, etc.) were noted along the bank and on the ground in the wooded area in the southwestern portion of the parcel. The only utilities noted on-site were overhead electric wires and a transformer station in the northeast corner of the parcel. A rail spur was located in the northern part of the property and has been removed. The mainline (located along the northern border) is active. There is approximately 2,000 feet of waterfront along the Hudson River. Key site features are presented on Figure 2-1. Primarily residential and agricultural land and some industrial land uses are within 1 mile of the property.

2.1.2 New York State Canal Corporation Parcel

The NYSCC portion of the site is an approximately 9.6-acre parcel located southwest of the Old Moreau parcel (see Figure 2-1). Like Old Moreau, it is currently undeveloped. The NYSCC parcel is open/wooded land containing miscellaneous surficial dumping. Surficial debris (consisting of domestic trash and appliances) was observed in the wooded area in the southeast corner of the property and in the eastern portion (in the wooded area) of the drainage ditch that runs along the southern border of the NYSCC parcel. The parcel also contains a concrete building foundation along the west-central border of the treeline located close to the river; a two-story steel structure surrounded by chain-link fence posts (possibly an abandoned power substation) approximately 30 feet east of the

concrete foundation (in the wooded area along the shoreline in the central portion of the parcel); buried plastic debris (eroding along the shoreline) in the central and northeastern portions of the parcel along the shoreline, extending onto the Old Moreau parcel; and a 100-foot by 200-foot chain-link fenced area containing the remains of several stone buildings and dug wells in the wooded portion along the shoreline, near the southeast portion of the parcel (an area of potential historic significance). An outfall, a valve, and piping were also observed on the west bank of Hudson River, opposite the southern tip of Rogers Island (located in Hudson River adjacent to the NYSCC parcel). An abandoned quarry and a 5.9-acre state-owned parcel are located to the south of the NYSCC parcel, and a PCB-contaminated Hudson River dredge spoils landfill (the New Moreau landfill) is located to the west of this parcel (property also owned by NYSCC). An approximate 100-foot by 100-foot historical cemetery is located west of the property. Rogers Island is east of the site across the Hudson River, between the town of Fort Edward and the town of Moreau. Rogers Island is an area of historic significance. The navigation channel within the Hudson River is on the east side of Rogers Island. Thus, water depths in the river next to the site are only 5 to 6 feet.

The NYSCC portion of the site is relatively flat. The shoreline exhibits a 10- to 15-foot drop-off with no significant dock facilities. No formal roads exist on-site. Key site features are presented on Figure 2-1.

2.2 Historical Use Information

2.2.1 Old Moreau Dredge Spoils Area

The Old Moreau portion of the site is the location of a former NE Pulp Recycling Corporation facility and a PCB dredge spoil landfill. The facility contained two large warehouses (250 feet by 400 feet and 110 feet by 150 feet) with a rail spur through the center of the larger warehouse and a pump station at the river. Only the concrete foundations and pads remain (see Figure 2-1). The rail spur was disconnected from the mainline and appears to have been removed. The section of rail within the building foundation (if present) is buried with sand. There are holes throughout the concrete pads at 5-foot intervals to allow water to drain.

2.2.2 New York State Canal Corporation Parcel

The NYSCC parcel contains historic concrete and stone building foundations. The NYSCC indicated that an electric substation was present at the site in the past, but at this time they are uncertain whether the foundations were a component of this substation.

2.3 Summary of Previous Studies

2.3.1 Old Moreau Dredge Spoils Area

Three previous investigations were identified as having been conducted on the Old Moreau parcel. The first was conducted by Weston Environmental Consultants-Designers in 1977. Weston excavated four test pits and collected soil and water samples. The analytical results for soil and water samples indicated the presence of PCBs at concentrations as high as 32 part per million (ppm). Three monitoring wells were also

installed. Groundwater samples were collected, and PCB concentrations as high as 90 parts per billion (ppb) were detected.

A second environmental investigation was conducted by Malcolm Pirnie, Inc. in 1992. Historical data were reviewed, and 59 soil borings were installed within the parcel. Fifty-one surface soil samples were collected for PCB analysis, two for total metals, and two for both total metals and Toxicity Characteristic Leachate Procedure (TCLP) analysis. The soil samples exhibited PCB concentrations as high as 170 ppm. Samples submitted for metals analysis indicated the presence of three metals (cadmium, chromium, and lead); however, all of the concentrations detected were below regulatory thresholds. The results of the field investigation were used to estimate the limits of PCB contamination, the volume of material for possible removal and the corresponding quantity of PCBs, and the costs for contaminated soil removal, relocation, and restoration of the property.

The third environmental investigation was conducted by the NYSDEC in 2002. Ninety-two surface soil samples, including three aqueous-phase samples, were collected from the parcel. The PCB concentrations ranged as high as 5.7 parts per million (ppm).

2.3.2 New York State Canal Corporation Parcel

This parcel was investigated along with the Old Moreau property during the 1977 Weston and 1992 Malcolm Pirnie investigations described above.

3. Phase II Investigation

3.1 Field Investigation

The initial phase of the environmental assessment consisted of collecting environmental and geotechnical samples. Results of the geotechnical sampling are provided in Section 4 of this report. Site photos are found in Appendix A. Boring logs and supplemental geotechnical information are found in Appendix B. Environmental samples were collected from surface soil, surface water, sediment, subsurface soil, and groundwater. Surface and subsurface soil samples were collected in dumping areas, current or former transformer locations, and areas of the sites where construction operations would be expected to occur if the site were selected. Surface water and sediment samples were collected along present site runoff flow pathways and sediment accumulation areas. Groundwater samples were collected to provide an indication of overall environmental conditions.

All environmental field investigations were performed in accordance with the August 2003 *Hudson River PCBs Superfund Site Facility Siting Work Plan* (Ecology and Environment, Inc.) and the September 2003 addenda to that plan, the *Site-Specific Field Investigations of the Final Candidate Sites* (Ecology and Environment, Inc.). Investigations at this site were performed in September and October 2003. A summary of investigation activities is provided in Table 3.1-1.

Deviations from the Work Plan

The following deviations from the work plan occurred during the field program:

- Surface water samples OM-SW03, OM-SW04, and OM-SW06 were not collected because of dry conditions at the time of sampling.
- Surface soil sample OM-SS04A was moved approximately 1,000 feet to the southwest because the site was higher in elevation than the adjacent railroad at the original location. Since the purpose of this sample was to test soil that may have been impacted from runoff from railroad property, the location was moved to a low-lying area adjacent to the railroad.
- Fifteen feet of screen were installed in temporary well OM-GP03 (rather than 10 feet) because of the presence of low yielding clay.
- One additional subsurface soil sample was collected from boring OM-GP05 because of elevated photo-ionization detector/flame ionization detector (PID/FID) readings from two separate depth intervals.
- Initially the field team was unable to collect all groundwater parameters on October 14 from temporary wells OM-GP01, OM-GP02, and OM-GP03 because of poor recharge. However, the remaining volumes were collected on October 15 and 16.

3.2 Environmental Sampling Program

3.2.1 Temporary Well Installation and Groundwater Flow

Five temporary 1-inch polyvinyl chloride (PVC) wells were installed via direct push technologies (DPT). Well construction information is provided in Table 3.2-1. Before groundwater sampling, each temporary well was purged of three times the volume of water standing in the casing or to dryness (whichever occurred first). Water quality parameters measured in the field during purging are presented in Table 3.2-2. Groundwater sample results are described below.

Groundwater elevations were measured from each temporary well upon well completion and at two separate times following completion of the sampling program. In addition, a surface water elevation was obtained from the Hudson River at the eastern boundary of the site. The top of each temporary well and a reference mark on the stream gauge were surveyed so that accurate elevation could be obtained. Table 3.2-3 summarizes the recorded elevations. Based on the limited information available from this study (five wells spaced at least 300 feet apart), groundwater flow beneath the site appears to be to the east towards the Hudson River (see Figure 3-1).

3.2.2 Field Sampling and Surveying

The initial environmental investigations at this site included collecting three surface soil samples; four surface water and seven sediment samples; subsurface soil sampling and installation and sampling of temporary monitoring wells via DPT at five locations; and installation of one stream gauge for hydrologic monitoring purposes. Table 3.2-4

summarizes the total number of field and quality assurance/quality control (QA/QC) samples collected and the parameters for which they were analyzed. Figure 3-1 illustrates all environmental investigation locations. All sample locations and stream gauges were surveyed for both horizontal and vertical positions. Survey data is presented in Appendix C. All samples were collected in accordance with the project work plans. Field chemistry data recorded from surface water sample locations are presented in Table 3.2-2. Results from each sample medium are described below.

3.2.3 Data Usability

Soil, sediment, surface water, and groundwater samples were collected from various locations at each FCS (see Section 3.3). The samples were submitted to several environmental analytical laboratories for analytical testing as directed by EPA. Appendix D provides the complete analytical results, field quality control (QC) samples, and data qualification. The specific data usability concerns regarding each FCS are still under evaluation as part of a detailed review of the hard copy data assessment reports. The following is a summary of general information regarding data usability determined from the electronic data review.

Out of a total of 4,487 reported values, 740 values were qualified during the data validation process. The data points that were qualified as estimated, bias low, or non-detect are considered useable for the purposes of this project. A total of six values were flagged as unusable, resulting in a completeness of more than 99.9%. Further evaluation of the data will include determining potential limitations of other qualified data and the impact of rejected data. In general, potential data limitations for the site are minor, as noted below:

- Low levels of several volatiles and pesticides were flagged “U” as non-detected. The results were generally below the reporting limit and, therefore, the data qualification has no impact on the data usability.
- Data qualified as unusable are for compounds that are generally highly reactive and not typically found during site investigations.
- Field blanks, including trip blanks, rinseates, and field duplicates, were collected to be applicable to all FCSs. The results are summarized in Appendix D. The results demonstrate good overall sampling and analysis precision and no significant field contamination.
- The laboratory reported tentatively identified compounds (TICs) for volatile and semivolatile compounds on the hard copy data package. TIC values are reported as “NJ” with presumptive evidence that the compounds are present and concentrations are considered highly estimated. The TICs are being reviewed to determine any indications of significant contamination not identified by the results for the known target compounds.

3.3 Environmental Sample Results and Evaluation

State and federal standards, criteria, and guidances were used for preliminary screening purposes during review of the analytical sample results for surface soil, subsurface soil, surface water, sediment, and groundwater. Exceedances of the criteria (with the exception of metals) are noted in Table 3.3-1 through 3.3-5 by shading the values that exceeded the criteria.

Metals cannot be directly compared to the criteria without additional evaluation (including evaluation of background levels) because metals occur naturally in the environment. Additionally, turbidity in surface water and groundwater samples can cause interference with metals analysis. These factors were considered in the evaluation of the significance of detected compounds.

The criteria were selected based on a review of available EPA and New York State Department of Environmental Conservation (NYSDEC) standards, criteria, and guidances for the various media sampled. The applicability of these preliminary screening criteria to the FCSs will be determined as part of further evaluation by EPA in consultation with NYSDEC and the New York State Department of Health (NYSDOH).

The following discussion identifies the samples, by medium, with compounds exceeding the screening criteria. Those compounds without appropriate screening criteria also are identified. Where available, pertinent information for comparison purposes is provided.

Soil (Surface and Subsurface)

NYSDEC, *Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels* (1994) and subsequent amendments (December 20, 2000) (TAGM 4046). The recommended soil cleanup objectives and typical eastern USA background concentrations for metals contained in TAGM 4046 were used as preliminary screening guidance for soil. Where specific guidance values were available for surface and subsurface soils (such as for polychlorinated biphenyls [PCB]) they were applied based on the depth of the samples collected. TAGM 4046 assumes a total organic carbon (TOC) of 1%.

Surface Water

NYSDEC, *Technical and Operational Guidance Series (T.O.G.S. 1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (1998). These standards and guidance provide values for various water classes. Since the majority of the surface water samples were collected from unnamed ditches and ponded water areas at the site, the surface water samples collected are assumed to be Class D waters (with the exception of sample OM-SW07, where Class C standards and/or guidance values were used because the sample was collected from waters of the Hudson River at a site outfall). Class D waters are best used for fishing. However, due to natural conditions such as intermittent flow, water conditions may not be conducive to fish propagation. Surface water standards and guidance values are calculated for some inorganics based on water hardness.

Sediment

NYSDEC, *Division of Fish, Wildlife and Marine Resources, Technical Guidance for Screening Contaminated Sediments* (1999). This guidance requires organic contaminants in sediments to be calculated based on sample TOC. TOC data were collected and used to calculate these screening values. Various criteria for bioaccumulation and acute and chronic toxicity are presented in this document for protection of human health, benthic aquatic life, and wildlife. The benthic aquatic life chronic toxicity protection level for sediment was selected as the preliminary screening value for all collected sediment samples.

Groundwater

NYSDEC, *Technical and Operational Guidance Series (T.O.G.S. 1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (1998) provides Class GA standards and guidance values. The *National Primary and Secondary Drinking Water Regulations, Current Drinking Water Standards* (2002) maximum contaminant levels (MCLs) were used for preliminary screening for groundwater samples collected from temporary wells.

3.3.1 Surface Soil

Volatile Organic Compounds (VOCs)

No VOCs exceeding screening criteria were detected in surface soil samples (see Table 3.3-1).

Compounds without screening criteria that were detected were isopropylbenzene (2 µg/kg [J]) and methyl acetate (1 µg/kg [J]) in OM-SS01 and methyl acetate (3 µg/kg) in OM-SS04.

Semivolatile Organic Compounds (SVOCs)

Exceedances of screening values (see Table 3.3-1) occurred in sample OM-SS04, a composite sample along the rail spur of (benzo(a)anthracene [460 µg/kg], benzo(a)pyrene [520 µg/kg], chrysene [590 µg/kg], and dibenzo(a,h)anthracene [190 µg/kg [J]).

Pesticides

No pesticides that exceed the screening criteria were detected.

Herbicides

No herbicides were detected in the surface soil samples.

PCBs

No PCBs were detected in the surface soil samples.

Hexane Extractable Materials (Total Petroleum Hydrocarbons [TPH])

No TPHs were detected in the soil samples.

Inorganics

Beryllium, chromium, copper, iron, magnesium, nickel, and zinc were all found above screening criteria (see Table 3.3-1). Metals are naturally occurring constituents of soil that often exceed criteria. The levels of these metals were within or close to the eastern USA background range, with the exception of zinc in OM-SS03, which was detected at more than three times the background range. Therefore, the presence of these metals is not of concern.

Low levels of cyanide (0.29 mg/kg, 0.23 mg/kg, and 0.34 mg/kg) were detected in OM-SS01 through OM-SS03, respectively (see Table 3.3-1). Although there are no screening criteria for cyanide, these low levels are not of concern.

3.3.2 Subsurface Soil

VOCs

No VOCs that exceed the screening criteria were detected.

Trichlorofluoromethane, a compound without screening criteria, was detected at low levels in OM-GP01 (0.7 µg/kg), OM-GP02 (0.7 µg/kg), and OM-GP03 (0.8 µg/kg). This constituent is a Freon compound that may be present in the sample as a laboratory artifact. Therefore, the presence of this constituent is not of concern.

SVOCs

No SVOCs were detected in the subsurface soil samples.

Pesticides

No pesticides that exceed the screening criteria were detected.

PCBs

No PCBs were detected in the subsurface soil samples.

Inorganics

Beryllium, calcium, chromium, copper, iron, magnesium, nickel, and zinc were all found above screening criteria (see Table 3.3-2). Metals are naturally occurring common constituents of soil that often exceed criteria. The levels of these metals are within or close to the eastern USA background range. Therefore, the presence of these metals is not of concern.

3.3.3 Surface Water

VOCs

No VOCs were detected in the surface water samples.

SVOCs

Bis(2-ethylhexyl)phthalate was detected in OM-SW07 (3 µg/L) above its screening criteria (0.6 µg/L) (see Table 3.3-3). Normally, phthalates are typically detected at low

concentrations in environmental samples as an artifact from the use of protective gloves both in the field and laboratory. However, this sample was collected from an outfall in the Hudson River adjacent to an eroded slope containing buried plastic waste. Therefore, this constituent may not be a field/laboratory artifact.

Pesticides

No pesticides were detected in the surface water.

PCBs

No PCBs were detected in the surface water.

Anions

Chloride, nitrate-N, and sulfate were detected in all surface water samples (see Table 3.3-3). Chloride, fluoride, and nitrate-N concentrations were relatively uniform between all the surface water locations; however, sulfate concentrations varied and were highest at OM-SW01.

Inorganics

Only iron (323 to 950 µg/L) and mercury (0.13 µg/L [B]) were detected above their respective standards (300 µg/L and 0.0007 µg/L) (see Table 3.3-3). Iron is a naturally occurring constituent of surface waters that often exceeds criteria. Although mercury exceeded its standard at OM-SW01, the value is estimated because it was detected below its detection limit and, therefore, it is not of concern.

Hardness

Hardness concentrations ranged between 175 mg/L and 440 mg/L (see Table 3.3-3).

3.3.4 Sediment

VOCs

No VOCs that exceeded the screening criteria were detected (see Table 3.3-4).

Compounds without screening criteria that were detected were 1,1,2-trichloro-1,2,2-trifluoroethane and chloromethane at very low concentrations (1 µg/kg or less) (see Table 3.3-4). 1,1,2-trichloro-1,2,2-trifluoroethane is a Freon compound that may be present in the sample as a laboratory artifact. Since these compounds were detected at very low levels, they are not of concern at this site.

SVOCs

No SVOCs that exceeded the screening criteria were detected (see Table 3.3-4).

Compounds without screening criteria that were detected were acetophenone (240 µg/kg [J]), benzo(a)pyrene (190 µg/kg [J]), benzo(b)fluoranthene (160 µg/kg [J]), benzo(k)fluoranthene (220 µg/kg [J]), and chrysene (250 µg/kg [J]) in OM-SE02; benzo(a)pyrene (450 µg/kg [J]), benzo(b)fluoranthene (470 µg/kg [J]), benzo(g,h,i)perylene (270 µg/kg [J]), benzo(k)fluoranthene (390 µg/kg [J]), chrysene

(550 µg/kg [J]), and indeno(1,2,3-cd)pyrene (350 µg/kg [J]) in OM-SE05; and benzaldehyde (420 µg/kg [J]) in OM-SE06 (see Table 3.3-4).

Pesticides

Beta-BHC (7.8 µg/kg [J]) and endosulfan I (5.8 µg/kg[J]) in OM-SE04; endosulfan I in OM-SE01 (4 µg/kg [R]), OM-SE02 (22 µg/kg [JN]), OM-SE05 (15 µg/kg [R]), and OM-SE06 (4.4 µg/kg [J]); and gamma-chlordane OM-SE07 (3.5 µg/kg) exceeded screening criteria. Data from OM-SE 01 and OM-SE05 is qualified as unusable.

The only compound without screening criteria that was detected was 4,4' DDE in OM-SE01 (14 µg/kg [J]), OM-SE02 (40 µg/kg [J]), OM-SE04 (5.7 µg/kg [JN]), OM-SE05 (46 µg/kg [J]), and OM-SE06 (4.9 µg/kg [J]).

PCBs

Aroclor 1242 in OM-SE02 (19,000 µg/kg); Aroclor 1248 in OM-SE01 (1,600 µg/kg [J]), OM-SE04 (360 µg/kg), OM-SE05 (2,600 µg/kg [J]), and OM-SE07 (440 µg/kg [J]); and Aroclor 1254 in OM-SE02 (3,300 µg/kg [J]) and OM-SE05 (3,800 µg/kg [J]) were detected in sediment samples at concentrations above screening criteria (see Table 3.3-4). The presence of PCBs at these locations is to be expected since the samples were collected from a drainage ditch on the Hudson River floodplain, at the toe of the Old Moreau PCB-contaminated dredge-spoil landfill, which contains PCB concentrations up to 170,000 µg/kg, and from an outfall within the Hudson River.

Inorganics

Antimony, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, and zinc were detected above at least one of their screening values (see Table 3.3-4). Metals are naturally occurring constituents of sediment that often exceed criteria. While most of these values exceeded only the lowest effect criteria, cadmium (10.4 mg/kg) slightly exceeded the severe effect criteria on OM-SE02. Chromium (214 mg/kg [J]) and 275 mg/kg [J]) and lead (238 mg/kg and 271 mg/kg) exceeded severe effect criteria in OM-SE02 and OM-SE05 by more than two times the value, and zinc (1,650 mg/kg, 981 mg/kg, and 288 mg/kg) in OM-SE01, OM-SE02, and OM-SE05 exceeded the severe effect level by 6 times, 3.5 times, and slightly more than 1 times the value, respectively.

Cyanide was detected at all sediment locations except OM-SE04 (see Table 3.3-4). No screening criteria are available for this compound. Concentrations ranged from 0.27 mg/kg to 11 mg/kg.

Total Organic Carbon (TOC)

Total organic carbon concentrations ranged from 6,900 to 73,000 mg/kg (see Table 3.3-4).

3.3.5 Groundwater

VOCs

No VOCs were detected in groundwater samples.

SVOCs

No SVOCs that exceed the screening criteria were detected (see Table 3.3-5).

Only one compound without screening criteria (caprolactam) was detected (see Table 3.3-5). The highest levels of caprolactam were in OM-GP01 (1,900 µ/L) and OM-GP03 (3,600 µ/L). OM-GP01 is near an electrical substation and OM-GP03 is near the railroad.

Pesticides

No pesticides that exceed the screening criteria were detected.

PCBs

Aroclor 1248 (1.6 µg/L) was detected above its standard at OM-GP04, which is downgradient of the Old Moreau dredge-spoil landfill (see Table 3.3-5).

Inorganics

Aluminum, iron, magnesium, manganese, and sodium were each detected above screening criteria (see Table 3.3-5). These metals are naturally occurring constituents of groundwater that often exceed criteria. Therefore, the presence of these metals is not of concern.

4. Geotechnical Assessment

A subsurface field investigation was conducted at the Old Moreau Dredge Spoils Area/NYSCC site to obtain geotechnical information. The primary purpose of collecting this data was to determine if there are geotechnical limitations associated with the use of the site for a sediment processing/transfer facility. Data collection included:

- Review of available subsurface information from previous studies; and
- Subsurface investigation, which included logging the subsurface geology.

Presented below is a summary of the site geologic and geotechnical data collected.

As discussed with EPA, existing information regarding geotechnical subsurface condition is available or is not needed for this site. Subsurface soil investigation was limited to investigation activities completed for environmental sampling. Five locations OM-GP01 through OM-GTP05 were selected in the northern and eastern parts of the site (See Figure 3-1). At each location, a continuous vertical soil profile was completed from ground surface to a depth of 25 feet below grade in 4-foot increments using direct-push technology (DPT). Subsurface soil geology was recorded in boring logs, presented in Appendix B.

DPT soil data indicates variable subsurface conditions. In the far northeastern corner, site soils consist of clays containing layers of silts and sands. Further to the south, an

approximately 5-foot layer of crushed concrete, stone, and silt overlie a clay containing silt and sand seams, where occasional gravel was encountered. Two feet of crushed concrete and silt located along the northwest side overlie clay containing sand and silt seams. Gravelly silty sands and gravelly sands underlain by sandy clays and clay silts underlie the south-central part of the site to a depth of 25 feet.

Site studies by Malcolm Pirnie (1992) indicate the western part of the site contains clay and silt soils, while sandy and silty soils dominate the eastern part of the site. They also report that their site soil investigation findings show silty sands and clayey soils on site. Dredge spoils were also present.

5. Utility Assessment

5.1 Preliminary Assessment

A preliminary utility assessment was completed as part of the site-specific field investigation of the Final Candidate Sites. Major site utilities identified on-site are shown on Figure 2-1. The assessment included the following steps:

- 1) Observations of site surface utilities such as overhead power or telephone lines, electrical transformers, manholes, sewer outfalls, and water hydrants were made.
- 2) Dig Safely New York (Dig Safe) was contacted as part of the utility clearance process before subsurface/intrusive work activities, including direct communication with various utility operators, as needed. Operators of on-site utilities provided information.
- 3) Available site maps were reviewed. Maps were obtained from various sources, including property owners.

It is anticipated that further utility assessments will be completed at the Recommended Sites. Further assessment may include contacting local municipal offices for information, opening manholes to determine flow paths, and dye testing. Further assessment may be conducted as part of the design evaluation process or during other additional investigation of Recommended Sites.

5.2 Findings and Observations

Utilities identified at the Old Moreau site included a telecommunications line (Level 3 Communications, Inc.) located in the railroad right-of-way that parallels the western site border. Overhead electrical power lines are located along West River Road.

6. Survey of Terrestrial, Archaeological, and Architectural Resources (STAAR)

Section 106 of the National Historic Preservation Act requires the federal agencies to take into account the effect that facility siting may have on cultural resources that are listed or are eligible for listing on the National Register of Historic Places (NRHP). Phase IB field investigations continued the cultural resources studies and are specifically designed to determine the presence and extent of cultural resources within the Old Moreau Dredge Spoils Area/New York State Canal Corporation (NYSCC) site (see *Addenda to the Hudson River PCBs Superfund Site Facility Siting Work Plan: Site-Specific Field Investigations of the Final Candidate Sites*). Field activities involved archaeological, geomorphological, and architectural investigations.

6.1 Archaeological Investigation

Archaeological reconnaissance was conducted in July 2003 and fieldwork was conducted October 29-30, 2003. Twenty shovel test pits were excavated within this 41.2-acre site. Shovel testing focused around the historic ruins of the former Jones/Rogers Estate. This property is potentially eligible both archaeologically and architecturally for listing on the NRHP. However, no cultural resources (i.e., artifacts, midden deposits) were found during shovel testing. The historic site appears to be confined within a chain-link fence established around the structural ruins.

6.2 Geomorphological Investigation

Three trenches were excavated by backhoe at this site between October 21 and October 23, 2003. Trench 1 and Trench 2 were excavated along the southwestern bank of the Hudson River, to the right of the road that leads into the project area. Trench 3 was excavated on the northwestern bank of the river, below a steep slope. The three backhoe trenches totaled 30 meters in length. Trench dimensions were all approximately 1.3 meters in depth and 10 meters in length.

Prehistoric Site Sensitivity

Although the project area is known to be rich in history due to local and regional activities during the Revolutionary War, no artifacts of any kind or paleosols were uncovered. The areas that were deep-tested appear to remain almost constantly wet because they are adjacent to the river and are located within the floodplain. Since most of the sediments within the trenches displayed gley discoloration, it was clear that flooding occurs regularly. It is doubtful that any prehistoric signs of habitation could remain intact.

6.3 Architectural Assessment

Fieldwork was conducted in July 2003 and October 13, 15, and 17, 2003. The Old Moreau Dredge Spoils property does not contain any structures more than 50 years old. Structures associated with a large industrial complex shown in aerial photographs have since been demolished. Only three large concrete pads remain.

The NYSCC property contains remains of historic structures. This property is associated with David Jones, fiancé of Jane McCrea, who was allegedly massacred by Native Americans allied with the British in 1777. The property was later purchased by Colonel Thomas Rogers, a prominent officer during the American Revolution, and became known as the Rogers Estate. This property, including the Rogers family cemetery located immediately to the west of the site, is potentially eligible for listing in the NRHP. One New York State Historic Resource Inventory (HRI) form is being prepared to document the Jones house. The Jones house is located in the extreme southeast portion of the site.

Rogers Island, which may contain structures associated with American colonial and Revolutionary War history, is located approximately 600 feet to the east of the site. One structure on the island is visible from the eastern edge of the site and was evaluated for potential NRHP-eligibility. It appears to be more than 50 years old but is a modest vernacular structure that has undergone numerous alterations and additions. It does not appear to meet NRHP-eligibility criteria. There are no architectural concerns associated with this site and no further architectural investigation is recommended. No HRI forms were completed for this structure.

7. Wetland Assessment

7.1 Determination and Delineation Methods

Wetland determinations and delineations of the Old Moreau Dredge Spoils Area/NYSCC site on September 18, 2003, followed the routine approach noted in the U.S. Army Corps of Engineers (USACE) 1987 *Wetland Delineation Manual*, as outlined in Section 3.6.2.2 of the *Hudson River PCBs Superfund Site Facility Siting Work Plans* (Work Plans) (Ecology and Environment, Inc. August 2003). Applicable data (e.g., soil surveys, National Wetland Inventory [NWI] mapping, etc.) were reviewed beforehand to provide background information (see Master Work Plans, Section 3.6.2.1). Determination and delineation activities were limited to those areas previously identified as potential wetlands through data review (i.e., NWI and NYSDEC mapping) and previous site reconnaissance efforts.

The Old Moreau Dredge Spoils Area (Old Moreau) property covers approximately 31.6 acres. About 70% of the site is previously developed/disturbed land with scattered vegetation, and the remainder is wooded. Topography across the site is relatively level. However, there is a relatively steep slope along the riverbank near the southern end of the property. Observations at the time of the field investigations indicated a bank height of approximately 10 feet above river stage. The waterfront is undeveloped and consists of a sand beach approximately 5 to 10 feet wide. A closed landfill area located in the southwestern portion of the site (i.e., the Moreau Dredge Spoils Disposal area) is somewhat raised and contains a drainage ditch at the toe of the mound that leads to the river.

The NYSCC portion of the site is an approximately 9.6-acre parcel located southwest of the Old Moreau site and is characterized by open/wooded land containing miscellaneous surficial dumps. Surficial debris (consisting of domestic trash and appliances) was

observed in the wooded area in the southeast corner of the site and in the eastern portion of the drainage ditch that runs along the southern border of the NYSCC parcel.

7.2 Review of Existing Information

Review of NWI mapping indicated a 1.0-acre wetland classified as PFO1C (palustrine, forested, broadleaved deciduous, seasonally flooded) (Figure 7-1). No wetlands were previously mapped by NWI on the NYSCC parcel. NYSDEC wetland mapping did not identify any wetlands on this site.

Although NWI wetland maps identify the river as a riverine wetland, sample plots and determinations along the shoreline were limited to areas that exhibited wetland characteristics and occurred above the ordinary high water mark. Determination and delineation efforts did not extend into the river.

The mapped soil types include Limerick-Saco complex, Udipsamments, and Hudson silt loam. The Limerick soils appear on the Saratoga County hydric soils list and the Udipsamments have the potential for hydric inclusions. The Limerick-Saco complex is mapped along the eastern boundary of the Old Moreau parcel, paralleling the river. These soils are deep and poorly to very poorly drained. Available water capacity is moderate to high (U.S. Department of Agriculture 2003). Soil samples taken in the wetlands within this area were similar to the soils described in the *Official Soil Series Descriptions* (U.S. Department of Agriculture 2003). Some sediment deposits of silt and coarse sand were observed within the shoreline area. The southern portion of the site, along with the entire NYSCC site, is mapped as being Udipsamment soil. The Udipsamments are moderately well to excessively drained soils formed by deposits of Hudson River dredge spoil material. The western portion of Old Moreau is mapped as Hudson silt loam. This is a clayey soil formed in lake-laid deposits. It is deep and moderately well drained (U.S. Department of Agriculture 2003).

7.3 Results of the Wetland Assessment

Field determination procedures resulted in the delineation of approximately 1.03 acres of wetland (Table 7-1) located within the floodplain area adjacent to the river (Figure 7-1). Four observation plots were completed on-site, three of which were determined to be within wetlands. Topographic variability and position within the landscape were the primary factors defining wetland boundaries. Wetland OM/NYSCC (1) (corresponds to observation plot OM/NYSCC-1) is a palustrine, forested complex located in the northeast corner of the Old Moreau parcel. This area is a low drainage channel with north-south flow bounded by a steep slope to the west and an upland buffer to the east. The dominant trees species within the forested wetland include red maple (*Acer rubrum*) and slippery elm (*Ulmus rubra*). Herbaceous vegetation includes sensitive fern (*Onoclea sensibilis*), ostrich fern (*Matteuccia struthiopteris*), false nettle (*Boehmeria cylindrica*), and jack-in-the-pulpit (*Arisaema triphyllum*). Soils within the wetland consisted of a silt loam that exhibited increasing sand content with depth. Slope runoff, input from the river during high flow events, and overland flow all contribute to the hydrology of this area.

Table 7-1 Wetland Delineation Summary

Wetland ID	Community Type	Acreage
OM/NYSCC (1)	PFO	0.29
OM/NYSCC (2)	PEM	0.09
OM/NYSCC (3)	PFO	0.65
Total Acreage		1.03
Key:		
PEM = Palustrine, emergent.		
PFO = Palustrine, forested.		

Wetland OM/NYSCC (2) (corresponds to observation plot 2) is a small, depressional (0.09-acre) palustrine, emergent (PEM) wetland located south of OM/NYSCC (1) at the bottom of a slope that forms its western boundary. Dominant vegetation includes broadleaf cattail (*Typha latifolia*), common reed (*Phragmites australis*), wool grass (*Scirpus cyperinus*), hop sedge (*Carex lupulina*), reed canary grass (*Phalaris arundinacea*), boneset (*Eupatorium perfoliatum*), purple loosestrife (*Lythrum salicaria*), blue vervain (*Verbena hastata*), and green bulrush (*Scirpus atrovirens*). Hydrology is influenced by seep drainage from upgradient areas and some overland flow through a drainage ditch (Figure 7-1). The soil is a silt loam with an increasing clay component in deeper layers. OM/NYSCC(2) is hydrologically connected to OM/NYSCC (3).

Wetland OM/NYSCC (3) (corresponds to observation plot OM/NYSCC-3) is a palustrine, forested area, similar in structure and vegetative composition to OM/NYSCC (1). This area is located adjacent to the toe of slope of a steep hill to the west and is separated from the river by a raised upland area to the east. A well-defined drainage/ input channel developed in the southern portion of the wetland area (Figure 7-1). Silver maple (*Acer saccharinum*) was the dominant tree species with sensitive fern (*Onoclea sensibilis*), reed canary grass (*Phalaris arundinacea*), stout-wood reed grass (*Cinna arundinacea*), and buttonbush (*Cephalanthus occidentalis*) dominant in the herbaceous layer. The soil was generally a silt/clay loam with several distinct layers. A layer of coarse sand was found between 3 and 5 inches in the profile. Below that layer a 1-inch layer of gleyed clay-loam was found. Hydrologic input into the wetland is via a shallow channel and slope that drains OM/NYSCC (2), side slope seeps from the steep slope to the west, and some input from the river through a channel that is oriented north-south and is located near the center of the wetland. During periods of high river stage this latter channel acts as a backwater area, impeding drainage through the wetland into the river. Conversely, during times of low river levels this channel appears to drain water from the wetland.

The delineated wetlands, though similar in size, differ slightly from those identified by the NWI mapping. The previously mapped PFO1C correlates to wetlands OM/NYSCC (2) and OM/NYSCC (3) with some minor variation (field-delineated wetlands being 0.27 acre smaller in size). Wetland OM/NYSCC (1) is located in the northern portion of the site, where no wetlands had been previously identified. The wetlands are located near the bases of hills, relatively close to the elevation of the river and likely are hydrologically influenced by groundwater seepage from upgradient areas and river stage.

No wetlands were identified on the NYSCC parcel during the survey. The riverbank is relatively steep and high within the NYSCC parcel. Additionally, previous dumping/landfilling activities have occurred on the site, which appear to have raised the ground elevation above pre-disturbance levels.

8. Floodplain Assessment

An initial floodplain assessment was conducted on the Old Moreau/NYSCC site in order to determine the presence, extent, and orientation of Federal Emergency Management Agency (FEMA)-mapped floodplains within site boundaries. Flood magnitudes and historic river stages from gauging stations as close as available to the site also were examined to obtain an initial sense of the characteristics of on-site flooding. Appendix E describes the methodology and assumptions involved in this assessment.

8.1 Location and Orientation of the Floodplain

Figure 8-1 shows that portions of the Old Moreau/NYSCC site are located within the 100-year and 500-year floodplains. The floodplain areas were obtained from Flood Hazard Boundary Maps and the Town of Moreau (Saratoga County) Flood Insurance Study (August 1995) from FEMA's Federal Insurance Administration.

The site is located on the west side of the Hudson River, opposite Rogers Island, in the Town of Moreau. The approximate area of the site is 41.2 acres (see Table 8-1). Approximately 18% (7.6 acres) of the total area of the site is within the base (100-year) floodplain, which is located within land adjacent to the Hudson River. River frontage is approximately 2,865 feet long.

Within the site, the flood plain is oriented in a narrow strip that parallels the river and is located entirely along the eastern edge of the parcel. The greatest width of the floodplain within the site is 185 feet.

Table 8-1 Summary of Old Moreau/NYSCC Site and Floodplain Characteristics

Is a portion of the site in the base (100-year) floodplain?	Yes
Total area of the site	41.2 acres (1,794,283 ft ²)
Area of the site within the base (100-year) floodplain	7.6 acres (330,332 sf)
Percentage of the site area within the base (100-year) floodplain	18.4%
Perimeter of the site (total length)	8,103 ft
Perimeter of the site bordering the Hudson River (river frontage)	~2,865 ft
Greatest width between the outer boundary of the base floodplain and the Hudson River boundary	~185 ft

8.2 100-year Flood

The FEMA maps show the 100-year flood elevation at the Moreau site to be between 130 feet and 131 feet National Geodetic Vertical Datum (NGVD). A brief examination of site topography and the FEMA mapping suggests that site elevation characteristics have not changed significantly since the FEMA floodplain modeling and mapping occurred.

The closest gauge station is in Fort Edward, approximately 0.6 miles upstream of the site boundary. Because of the relative proximity of the site to the gauge station, values of the 100-year flood at the gauge station will be similar to the site. The National Weather Service flood stage at the Fort Edward gauge station is 127 feet NGVD. At 127 feet NGVD, water floods River Road in Northumberland, reaches camps in Lake Luzerne, and may result in flooding in Stillwater (National Weather Service Advanced Hydrologic Prediction Service, <http://ahps.erh.noaa.gov/cgi-bin/ahps.cgi?aly&Hudson%20River>).

Flood magnitudes were calculated using statistical methods from the twenty-six years of flow data at the gauge station after the Fort Edward dam was removed. Based on this data, the 100-year flood stream flow is 47,772 cubic feet per second (cfs). A flood of this magnitude has not occurred in the twenty-six years of modern data. In that time, there have been two flow events greater than 10-year floods (May 3, 1983 and January 10, 1998).

The Flood Insurance Study indicates that “since the completion of the Sacandaga Reservoir, major floods have occurred on the Hudson River on January 1, 1949, April 3, 1976, and April 28, 1979 . . . the flood of 1949 had a recurrence interval of close to 100 years.”

8.3 Local Flooding

Historic water level data (1916 to 2000) also is available from the NYSCC Lock 7. Lock 7 is close to the Old Moreau site, directly opposite the southern boundary on the eastern side of the Hudson River. The highest water level at the downstream side of Lock 7 was 131.37 feet NGVD (April 13, 1922). Based on the NYSCC data, the 100-year flood elevation (between 130-131 feet) may have been reached within site boundaries once between 1916 and 2000.

Spot elevations surveyed along the river edge of the site boundary range from 118.1 to 119.5 feet NGVD. The contour information (5-foot intervals) provided with 2002 aerial photography of the site shows a 120-foot contour line along the land-river edge. Therefore, the 100-year flood would put the river frontage of the site under approximately 12 feet of water.

Given the proximity to the Hudson River, the area of the site that is located within the 100-year floodplain, and site topographic characteristics, the site appears to be subject to flooding events. While the probability of a 12-foot inundation event (100-year flood) is remote, NYSCC water level data on the downstream side of Lock 7 provide evidence that flooding on a smaller scale likely occurs almost annually at this site. The site shoreline boundary would have been under approximately 12 feet of water during the maximum

high water level on April 3, 1922 and under an average of 5.6 feet of water during the maximum flow recorded for each year. The Flood Insurance Study shows the 10-year flood profile in the vicinity of the site to be 128 feet NGVD.

Limited flooding was observed on October 28, 2003 in the northern extent of the floodplain adjacent to the river.

9. Coastal Management Area Assessment

The Old Moreau Dredge Spoils Area/NYSCC site is not located in the state-designated coastal zone. Therefore, no direct impacts are expected as a result of the potential use of this site. EPA will prepare an additional phase of its coastal zone consistency assessment and subsequent coastal zone consistency determination, covering potential indirect and cumulative impacts from the operation of sediment processing/transfer facilities, once the Phase 1 and Phase 2 dredging facility locations are selected.

10. Baseline Habitat and Threatened and Endangered Species Assessment

10.1 Site Habitat Description

The Old Moreau site description information is presented in the *Addenda to the Hudson River PCBs Superfund Site Facility Siting Work Plans: Site-Specific Field Investigations of the Final Candidate Sites* (Ecology and Environment, Inc. September 2003). The site is a former industrial/commercial facility located in a rural setting. The disturbance from these activities has greatly influenced the availability, extent, and diversity of on-site habitats. The buildings have been removed and the rail line has been buried. The demolition of the old buildings has resulted in the creation of a park-like setting on portions of the site. The concrete foundations of the main buildings are still present but have had holes drilled in them for site drainage, and grasses are planted along the sides of the foundation. A portion of the site contains the remnants of a concrete building foundation (rural structure exterior community type), and another portion of the site contains a dredge spoils area (i.e., landfill). The majority of habitats on-site are composed of relatively early successional (less than 20 years) to mid-successional (20 to 60 years) vegetation communities, with several areas of late successional (greater than 60 years) along the forested shoreline.

Figure 10-1 shows the habitat community types, as defined by Edinger et al. (2002) that are present on the site. Field investigations were conducted on September 18 and October 28, 2003 to determine habitat availability within the site and to provide descriptions of existing habitat structure, diversity, and condition. Fourteen community types have been mapped as occurring on this 41-acre site (Figure 10-1). No significant or unique habitats were among them. The predominant communities (relative to total cover across the site) are briefly described below. A description of the different community types from Edinger et al. (2002) is presented in Appendix F.

Dredge Spoils/Successional Northern Hardwood/Successional Old Field

The dredge spoils/successional northern hardwoods/successional old field community type covers 29% of the site. The dredge spoils/successional northern hardwoods/successional old field contained areas of successional shrubland and old field but is dominated by the successional northern hardwood forest community type. These communities were grouped since there are no distinct transition areas among these habitats. Dominant trees include black locust, cottonwood, quaking aspen, and box elder. Shrubs include Eastern white pine, cottonwood, box elder, gray dogwood, sumac, and black locust. The herbaceous layer contained Queen Anne's lace, goldenrods, asters, and blackberries.

Pine Northern Hardwood

The pine northern hardwood (PNH) community is the next dominant community on the site, accounting for 17% of the total area. The predominant species include Northern white cedar, Eastern white pine, red oak, white ash, sugar maple, cottonwood, and black locust; the shrub layer is dominated by honeysuckles. Herbaceous plants include white snakeroot, white campion, goldenrods, Virginia creeper, and wild grape. Several larger, older trees are scattered within portions of the site in the PNH communities. These include several large red oak trees (> 20 inches diameter breast height [dbh]), an Eastern white pine (30 inches dbh), and a Northern red cedar (31 inches dbh).

Successional Old Field

The successional old field (SOF) community comprises approximately 13% of the site. The SOF communities contained sedges, goldenrods, birdsfoot trefoil, Queen Anne's lace, butter and eggs, bush clover, vetch, and bluegrass species, with scattered woody growth that includes cottonwood, sumac, black willow, and Eastern white pine on portions of the site. Asters and goldenrods composed a majority of the herbaceous ground cover.

Mowed Pathway

The mowed pathway community comprises approximately 9% of the site. This community is located around the remnant building foundations and railroad present on the site. The predominant plant species include goldenrods and sedges. The successional shrubland (SS) accounts for approximately 5% of the site and is dominated by honeysuckles, sumac, cottonwoods, black locust, box elder, and green ash. The herbaceous layer contains asters, goldenrods, poison ivy, blackberries, and sedges.

Successional Northern Hardwood

The successional northern hardwood (SNH) accounts for approximately 7% of the site area. Predominant species include quaking aspen, black locust, cottonwood, box elder, and red maple. Additional tree species include American elm, Eastern white pine, green ash, and white ash. The shrub layer is dominated by honeysuckles. Some areas exhibited moderate densities of green ash, white ash, and multi-flora rose. The herb layers contained asters, goldenrods, poison ivy, Queen Anne's lace, and blackberries. Some areas of the SNH were dominated by quaking aspen and black locust, or box elder, sumac, and cottonwoods.

Other Communities

The maple-basswood rich mesic forest accounts for 4% of the total area of the site. Representative species include silver maple, red maple, and bitternut hickory as the dominant tree species, with occasional basswoods. The age of the forest stand appeared to be early to middle-aged (individual trees ranged from 5 to 12 dbh). The shrub layer is sparse and contained small pockets of honeysuckle spp. At the time of the visit (autumn) there was virtually no herbaceous layer, with scattered growth of ostrich fern and sensitive fern.

Aquatic communities occurring on-site include backwater slough and an intermittent stream. The backwater slough is a shallow bay, which is connected to the Hudson River. Emergent vegetation (i.e., cattail) and open water are present in this community. The intermittent stream ends at the apparent base of the dredge spoils area. The stream is ephemeral and no water was observed during the field visits. Wetland communities present on the site are discussed in further detail in Section 7. The northern shoreline community is characteristic of a forested floodplain with portions of shallow sand and gravel beach, interspersed in pockets of heavy vegetation. The southern end of the site has a steep bank with a rock riprap toe layer. Most the shoreline is shallow with a predominantly sand substrate. Some large woody debris structure is present along the shoreline.

Common vegetation species and community structure have an influence on wildlife occurrences on the site. The availability of forested, shrubland, and old field communities provides a diverse habitat for wildlife species. Incidental wildlife observations included white-tail deer tracks, beaver tracks, gray squirrel, red fox, raccoon tracks, wood frog, green frog, tree frog, turkey vulture, red-tailed hawk, mallards, and various songbirds.

10.2 Endangered Species Act Issues

Correspondence with the U.S. Fish and Wildlife Service and NYSDEC indicates that there are no threatened or endangered species issues associated with this site. Wintering bald eagles may migrate through the area but are not known to use the site. A biological assessment will be prepared that will examine the potential impacts associated with the construction and operation of a sediment processing/transfer facility for each of the Suitable Sites.

Table 3.1-1 Summary of Activities, Hudson River PCBs Superfund Site

		Energy Park/Longe/ NYS Canal Corporation Site	Old Moreau Dredge Spoils Area/NYS Canal Corporation Site	Georgia Pacific/ NYS Canal Corporation Site	NYS Canal Corporation/ Allco/Leyerle Site	Bruno/Brickyard Associates/ Alonzo Site	State of New York/First Rensselaer/ Marine Management Site	OG Real Estate Site
Environmental Investigation	Environmental Sampling	09/29/03 - 09/30/03	09/30/03 - 10/01/03	10/08/03 - 10/09/03	10/01/03 - 10/03/03	10/03/03 - 10/07/03	10/08/03	10/07/03
	Temporary Well Installation	09/29/03 - 10/01/03	10/02/03	10/08/03	10/09/03	10/09/03 - 10/10/03	10/03/03 - 10/06/03	10/07/03
	Temporary Well Sampling	10/16/03	10/14/03 - 10/16/03	10/13/03 - 10/14/03	10/15/03	10/15/03 - 10/16/03	10/10/03 - 10/15/03	10/15/03
	Surveying	10/01/03 - 11/11/03	10/08/03 - 11/11/03	10/09/03 - 10/29/03	10/21/03 - 10/31/03	10/15/03 - 10/29/03	10/21/03 - 11/10/03	11/11/03 - 11/13/03
	Geotechnical Investigation	09/29/03 - 10/01/03	NA	10/08/03	10/07/03 - 10/09/03	10/09/03 - 10/10/03	10/03/03 - 10/06/03	NA
	Utilities Assessment	09/29/03 - 09/30/03	09/30/03 - 10/01/03	10/08/03 - 10/09/03	10/01/03 - 10/03/03	10/03/03 - 10/07/03	10/08/03	10/07/03
	STAAR	10/06/03 - 10/16/03	10/13/03 - 10/30/03	10/11/03 - 10/28/03	10/23/03 - 11/13/03	10/17/03 - 11/05/03	10/25/03 - 11/14/03	11/15/03
	Wetland Assessment	09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
	Floodplain Assessment	09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
	Coastal Management Areas	09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
	Baseline Habitat Assessment	09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
	Threatened and Endangered Species Assessment	09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
	IDW Disposal	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Key:

- IDW = Investigation-derived waste.
- NYS = New York State.
- PCBs = Polychlorinated biphenyls.
- STAAR = Survey of Terrestrial Archaeological and Architectural Resources
- TBD = To be determined.

Table 3.2-1 Summary of Temporary Well Construction, Hudson River PCBs Superfund Site

Site	Well/Piezometer No.	Date Started	Date Completed	Drilling Company	Date Sampled	Depth Drilled (Feet BGS)	Ground Elevation (Feet AMSL)	PVC Well Casing/ Screen I.D. (inches)	Total Depth (Feet TOIC)	TOIC Casing Elevation (Feet AMSL)	Screened (0.010 slot) Interval (Feet BGS)	Sand Interval (Feet BGS)	Seal Interval (Feet BGS)	Stick-up (Feet AGS)
EPL	EPL-GP01	9/29/03	9/29/03	N	10/16/03	25.4	135.11	1	27.4	137.2	15.4-25.4	5-25.4	2-5	2.0
	EPL-GP02	9/29/03	9/29/03	N	10/16/03	25	137.91	1	27.4	140.42	15-25	4-25	2-4	2.4
	EPL-GP03	9/29/03	9/29/03	N	10/16/03	25.1	135.52	1	27.51	137.99	15.1-25.1	4-25.1	0.6-4	2.41
	EPL-GP04	10/1/03	10/1/03	N	10/16/03	25	129.47	1	27.3	131.79	15-25	4-25	2-4	2.3
	EPL-GP05	10/1/03	10/1/03	N	10/16/03	25	132	1	27.5	134.53	15-25	4-25	2-4	2.5
OM	OM-GP01	10/2/03	10/2/03	N	10/16/03	25	157.67	1	27.4	160.19	15-25	4-25	2-4	2.4
	OM-GP02	10/2/03	10/2/03	N	10/16/03	25.4	141.79	1	27.62	144.2	15.3-25.3	4-25.3	2-4	2.32
	OM-GP03	10/2/03	10/2/03	N	10/15/03	25	155.84	1	27.3	158.37	10-25	4-25	2-4	2.3
	OM-GP04	10/2/03	10/2/03	N	10/15/03	25	143.5	1	22.5	146	10-20	4-25	0-4	2.5
	OM-GP05	10/2/03	10/2/03	N	10/14/03	25	133.43	1	27.5	135.93	15-25	4-25	0-4	2.5
GPS	GPS-GP01	10/9/03	10/9/03	N	10/13/03	25	108.4	1	28.15	111.60	15-25	4-25	2-4	3.15
	GPS-GP02	10/8/03	10/8/03	N	10/14/03	9.3	108.68	1	11.8	111.19	4.3-9.3	3-9.3	0.5-3	2.5
	GPS-GP03	10/8/03	10/8/03	N	10/14/03	25.5	102.76	1	27.55	104.76	15.5-25.5	4-25.5	2-4	2.05
	GPS-GP04	10/8/03	10/8/03	N	10/14/03	25.7	112.02	1	28.2	114.48	15.7-25.7	4-25.7	2-4	2.5
	GPS-GP05	10/8/03	10/8/03	N	10/13/03	25	100.71	1	27.45	103.31	14.85-24.85	4-25	2-4	2.6
	GPS-GP06	10/9/03	10/9/03	N	10/14/03	25	110.76	1	17.5	113.24	5-15	3-15 ^A	1-3	2.5
	GPS-GP07	10/9/03	10/9/03	N	10/14/03	25	112.98	1	22.4	115.38	10-20	3-20 ^B	0.5-3	2.4
	GPS-GP08	10/8/03	10/8/03	N	10/13/03	18.5	113.36	1	19.7	114.74	8.5-18.5	3-18.5	1-3	1.2
NCC	NCC-GP01	10/9/03	10/9/03	N	10/15/03	25	48.53	1	25.5	51.02	13-23	4-23 ^C	2-4	2.5
	NCC-GP02	10/7/03	10/7/03	N	-	6.9	52.5	Dry hole - no well constructed						
	NCC-GP03	10/9/03	10/9/03	N	10/15/03	22.9	43.56	1	23.65	46.2	11-21	4-22.9	2-4	2.65
	NCC-GP04	10/3/03	10/3/03	N	-	2	65.89	Not accessible by rig, boring was hand-augered						
	NCC-GP05	10/7/03	10/7/03	N	-	11	51.52	Dry hole - no well constructed (same as boring NCC-GT01)						
BBA	BBA-GP01	10/10/03	10/10/03	N	10/15/03	25	131.88	1	18.6	134.39	6-16	4-16 ^D	0.5-4	2.6
	BBA-GP02	10/10/03	10/10/03	N	10/16/03	25	144.41	1	18.55	146.87	6-16	4-18 ^E	0.5-4	2.55
	BBA-GP03	10/9/03	10/9/03	N	10/15/03	18.3	76.45	2	19.62	77.77	3.8-13.8	2.8-18.3	0-2.8	1.32
	BBA-GP04	10/10/03	10/10/03	N	10/15/03	14	77.57	1	16.8	80.38	3.5-13.5	2-14	0.5-2	2.8

Table 3.2-1 Summary of Temporary Well Construction, Hudson River PCBs Superfund Site

Site	Well/Piezometer No.	Date Started	Date Completed	Drilling Company	Date Sampled	Depth Drilled (Feet BGS)	Ground Elevation (Feet AMSL)	PVC Well Casing/	Total Depth (Feet TOIC)	TOIC Casing Elevation (Feet AMSL)	Screened (0.010 slot) Interval (Feet BGS)	Sand Interval (Feet BGS)	Seal Interval (Feet BGS)	Stick-up (Feet AGS)
MM	MM-GP01	10/6/03	10/6/03	N	10/10/03	25	18.73	1	27.4	20.52	15-25	4-25	2-4	2.4
	MM-GP02	10/3/03	10/3/03	N	10/10/03	25	5.87	1	27.6	7.75	15-25	4-25	2-4	2.6
	MM-GP04	10/6/03	10/6/03	N	10/15/03	25	15.50	1	27.4	17.22	14.5-24.5	4-24.5	2-4	2.9
OG	OG-GP01	10/7/03	10/7/03	N	10/15/03	25	10.28	1	17.70	12.94	5.35-15.35	3-16 ^E	1-3	2.35
	OG-GP02	10/7/03	10/7/03	N	10/15/03	25.1	14.26	1	27.35	16.46	15.1-25.1	4-25.1	2-4	2.25
	OG-GP03	10/7/03	10/7/03	N	10/15/03	25	17.95	1	27.45	20.4	15-25	4-25	2-4	2.45

^A Hole was allowed to collapse to 10.15 feet BGS.

^B Hole was allowed to collapse to 20 feet BGS.

^C Hole was allowed to collapse to 23 feet BGS.

^D Hole was allowed to collapse to 18 feet BGS.

^E Hole was allowed to collapse to 16 feet BGS.

Key:

AGS = Above ground surface.

AMSL = Above mean sea level.

BBA = Bruno/Brickyard Associates/Alonzo Site.

BGS = Below ground surface.

EPL = Energy Park/Longe/NYS Canal Corporation Site.

GP = Geoprobe temporary well location.

GPS = Georgia Pacific/NYS Canal Corporation Site.

I.D. = Inner diameter.

MM = State of New York/First Rensselaer/Marine Management Site

N = Northstar Drilling.

NCC = NYS Canal Corporation/Allco/Leyerle Site.

NYS = New York State.

OG = OG Real Estate.

OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

PVC = Polyvinyl chloride.

TOIC = Top of inner casing.

Table 3.2-2 Groundwater and Surface Water Field Measurements
Old Moreau Dredge Spoils Area/NYS Canal Corporation Site

Sample ID	Date	pH (s.u.)	Temperature (°C)	Conductivity (μS/cm)	Turbidity (NTU)
Groundwater					
OM-GP01-GW	10/14/03	7.34	11.7	919.8	151
OM-GP02-GW	10/14/03	7.44	13.8	1,060	96.3
OM-GP03-GW	10/14/03	7.44	13.1	1,162	658
OM-GP04-GW	10/14/03	6.56	13.3	1,348	>1,000
OM-GP05-GW	10/14/03	6.64	12.2	1,026	476
Surface Water					
OM-SW01	9/30/03	7.27	14.5	504.8	3.38
OM-SW02	9/30/03	7.61	16.7	187.7	3.51
OM-SW03	9/30/03	Dry			
OM-SW04	9/30/03	Dry			
OM-SW05	9/30/03	7.90	16.8	118.8	3.24
OM-SW06	9/30/03	Dry			
OM-SW07	10/1/03	7.02	16.3	108.5	3.55

Key:

- °C = Degrees Celsius.
- GP = Boring location.
- GW = Groundwater sample.
- ID = Identification.
- μS/cm = MicroSiemens per centimeter.
- NTU = Nephelometric turbidity units.
- NYS = New York State.
- OM = Old Moreau Dredge Spoils Area/NYS Canal Corporation Site.
- s.u. = Standard units.
- > = Greater than.

**Table 3.2-3 Summary of Water Level Elevations
Old Moreau Dredge Spoils Area/NYS Canal Corporation Site**

Well/ Stream Gauge ID	Ground Elevation (ft AMSL)	Reference Elevation (ft AMSL) ^a	10/14/03		10/23/03		11/6/03	
			Water Level (ft TOIC)	Water Elevation (ft AMSL)	Water Level (ft TOIC)	Water Elevation (ft AMSL)	Water Level (ft TOIC)	Water Elevation (ft AMSL)
OM-GP01	157.67	160.19	15.50	144.69	16.50	143.69	9.39	150.80
OM-GP02	141.79	144.20	4.89	139.31	5.52	138.68	3.43	140.77
OM-GP03	155.84	158.37	4.59	153.78	4.47	153.90	3.76	154.61
OM-GP04	143.5	146.00	15.56	130.45	15.72	130.28	13.49	132.51
OM-GP05	133.43	135.93	15.38	120.55	15.18	120.75	14.33	121.60
OM-SG01	NA	121.21	NM	NM	1.66	120.07	1.5 ^b	120.2 ^c

^a Reference elevation is TOIC for borings and 3-foot mark on gauge for stream gauges.

^b Estimation from top of gauge pole; gauge pole could not be reached for precise measurement due to depth of water.

^c Estimated value.

Key:

AMSL = Above mean sea level.

ft = Feet.

GP = Boring location.

NA = Not applicable.

NM = Not measured.

NYS = New York State.

OM = Old Moreau Dredge Spoils Area/NYS Canal Corporation Site.

SG = Stream gauge location.

TOIC = Top of inner casing.

Table 3.2-4 Old Moreau Dredge Spoils Area/NYS Canal Corporation Site Sample Listing, Hudson River PCBs Superfund Facility Siting

Media	Date	Sample Location	CLP Number	Matrix Code	Depth	Type	CLP		TCL VOCs (OLM04.2)	TCL SVOCs (OLM04.2)	TCL Pesticides/PCBs (OLM04.2)	TAL Metals/Mercury (ILM04.1)	TAL Cyanide (ILM04.1)	% Solids (ASTM_D2216)	Chlorinated Herbicides (8151A)	Anions (9056)	TOC (Lloyd Kahn)	Hardness (130.2)	Hexane Extractable Material (9071B)	TCLP VOCs	TCLP SVOCs	TCLP Metals/Mercury	Area of Interest
							Organics	Inorganics															
Surface Soil	10/1/03	OM-SS01	B14T4	SO	0-2 in	N	X	X	X	X	X	X	X	X									Composite sample of four locations around electrical substation (VOC portion was a discrete sample from the location of the aliquot on the south side of the transformer)
	10/1/03	OM-SS02	B14T5	SO	0-2 in	N		X	X	X	X	X	X	X									Fill area
	10/1/03	OM-SS03	B14T6	SO	0-2 in	N		X	X	X	X	X	X	X									Composite sample of three locations around potential electrical substation
	10/1/03	OM-SS04	B14T7	SO	0-2 in	N	X	X	X	X	X	X	X	X	X				X				Composite sample of 3 locations (A, B, C) adjacent to railroad (VOC portion was a discrete sample from the location of aliquot A)
	10/1/03	OM-SS04/D	B1535	SO	0-2 in	FD	X	X	X	X	X	X	X	X	X				X				
Surface Water	9/30/03	OM-SW01	B14W7	SW	-	N	X	X	X	X	X	X	X			X		X					Ditch - upstream
	9/30/03	OM-SW02	B14W5	SW	-	N	X	X	X	X	X	X	X			X		X					Ditch - central
	-	OM-SW03	-	SW	-	N																	Second ditch - upstream - DRY
	-	OM-SW04 ^B	-	SW	-	N																	Second ditch - central (leachate) - DRY
	9/30/03	OM-SW05	B14W6	SW	-	N	X	X	X	X	X	X	X			X		X					Outfall (first and second ditches)
	-	OM-SW06	-	SW	-	N																	Third ditch - DRY
	10/1/03	OM-SW07	B14W8	SW	-	N	X	X	X	X	X	X	X			X		X					Outfall
Sediment	9/30/03	OM-SE01	B14T8	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Ditch - upstream
	9/30/03	OM-SE02	B14T9	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Ditch - central
	9/30/03	OM-SE03	B14W0	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Second ditch - upstream
	9/30/03	OM-SE04	B14W1	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Second ditch - central
	9/30/03	OM-SE05	B14W2	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Outfall (first and second ditches)
	9/30/03	OM-SE06	B14W3	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Third ditch
	10/1/03	OM-SE07	B14W4	SE	0-2 in	N	X	X	X	X	X	X	X	X			X						Outfall
Geoprobe Borehole Subsurface Soil	10/2/03	OM-GP01-SB	B14W9	SO	11-13	N	X	X	X	X	X	X	X	X									Electrical substation
	10/2/03	OM-GP02-SB	B14X0	SO	8-10	N	X	X	X	X	X	X	X	X									Near warehouse
	10/2/03	OM-GP03-SB	B14X1	SO	4.25-5.75	N	X	X	X	X	X	X	X	X									Near railroad
	10/2/03	OM-GP04-SB	B14X2	SO	12.8-14.8	N	X	X	X	X	X	X	X	X									Downgradient of landfill
	10/2/03	OM-GP05-SB1	B14X3	SO	11-13	N	X	X	X	X	X	X	X	X									Coverage
	10/2/03	OM-GP05-SB2	B1574	SO	17-18.6	N	X	X	X	X	X	X	X	X									Coverage

Key at the end of Table

Table 3.2-4 Old Moreau Dredge Spoils Area/NYS Canal Corporation Site Sample Listing, Hudson River PCBs Superfund Facility Siting

Media	Date	Sample Location	CLP Number	Matrix Code	Depth A	Type	CLP		Non-CLP																Area of Interest
							Organics	Inorganics																	
							TCL VOCs (OLM04.2)	TCL SVOCs (OLM04.2)	TCL Pesticides/PCBs (OLM04.2)	TAL Metals/Mercury (ILM04.1)	TAL Cyanide (ILM04.1)	% Solids (ASTM_D2216)	Chlorinated Herbicides (8151A)	Anions (9056)	TOC (Lloyd Kahn)	Hardness (130.2)	Hexane Extractable Material (9071B)	TCLP VOCs	TCLP SVOCs	TCLP Metals/Mercury					
Geoprobe Temporary Well Groundwater	10/16/03	OM-GP01-GW	B14X6	GW	15-25	N	X	X	X	X	X														Electrical substation
	10/16/03	OM-GP02-GW	B14X7	GW	15.3-25.3	N	X	X	X	X	X														Near warehouse
	10/15/03	OM-GP03-GW	B14X8	GW	10-25	N	X	X	X	X	X														Near railroad
	10/15/03	OM-GP04-GW	B14X9	GW	10-20	N	X	X	X	X	X														Downgradient of landfill
	10/14/03	OM-GP05-GW	B14Y0	GW	15-25	N	X	X	X	X	X														Coverage
IDW	TBD	OM-WA01	-	WA	-	N												X	X	X					General
	TBD	OM-WW01	-	WW	-	N												X	X	X					General

^A Depth in feet below ground surface unless otherwise specified.

^bThis sample was also scheduled to be analyzed for Total Organic Carbon (Method Lloyd Kahn); Biochemical Oxygen Demand (Method BOD5 and CBOD5); Chemical Oxygen Demand (Method COD); TKN (Method 351.3); and Ammonia, Nitrogen (Method 4500-NH3).

Key:

CLP = Contract Laboratory Protocol
 /D = duplicate sample
 FD = field duplicate sample (Type)
 GP = Geoprobe boring location
 GT = geotechnical boring location
 GW = groundwater sample
 IDW = investigation-derived waste
 in = inch
 M = matrix spike/matrix spike duplicate (Type)
 N = original sample (Type)
 NYS = New York State
 OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.
 PCB = polychlorinated biphenyl
 QA = quality assurance

QC = quality control
 SB = subsurface soil
 SE = sediment sample
 SO = soil sample
 SS = surface soil
 SVOCs = semivolatile organic compounds
 SW = surface water
 TBD = to be determined
 TCL = target compound list
 TCLP = toxicity characteristic leachate procedure
 TOC = total organic carbon
 VOCs = volatile organic compounds
 WA = IDW solid waste
 WW = IDW waste water

Table 3.3-1

Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID:	OM-SS01	OM-SS02	OM-SS03	OM-SS04	OM-SS04/D
			Date:	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003
			Depth:	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in
TCL Volatile Organic Compounds (µg/Kg)								
Isopropylbenzene	NA	NA		2 J	--	--	12 U	11 U
Methyl Acetate	NA	NA		1 J	--	--	12 U	3 J
Xylenes (Total)	1200	NA		51	--	--	12 U	11 U
TCL Semivolatile Organic Compounds (µg/Kg)								
Benzo(a)anthracene	224 or MDL	NA		450 U	420 U	380 U	460	450 U
Benzo(a)pyrene	61 or MDL	NA		450 U	420 U	380 U	520	450 U
Benzo(b)fluoranthene	1100	NA		450 U	420 U	380 U	540	450 U
Benzo(g,h,i)Perylene	50000	NA		450 U	420 U	380 U	320 J	450 U
Benzo(k)fluoranthene	1100	NA		450 U	420 U	380 U	580	450 U
Bis(2-ethylhexyl)phthalate	50000	NA		450 U	420 U	380 U	440 U	970
Chrysene	400	NA		450 U	420 U	380 U	590	450 U
Dibenzo(a,h)anthracene	14 or MDL	NA		450 U	420 U	380 U	190 J	450 U
Di-n-octylphthalate	50000	NA		450 U	110 J	380 U	440 U	450 U
Fluoranthene	50000	NA		450 U	420 U	380 U	720	450 U
Indeno(1,2,3-cd)pyrene	3200	NA		450 U	420 U	380 U	450	450 U
Phenanthrene	50000	NA		450 U	420 U	380 U	290 J	450 U
Pyrene	50000	NA		450 U	420 UJ	380 UJ	630	450 UJ
TCL Pesticide and PCBs (µg/Kg)								
4,4'-DDE	2100	NA		4.5 U	4.2 U	3.8 U	4.4 U	0.88 J
4,4'-DDT	2100	NA		4.5 U	4.2 U	3.8 U	4.4 U	4.5 J
alpha-Chlordane	540 (3)	NA		2.3 U	2.2 U	2 U	2 J	2.3 U
Endosulfan I	900	NA		2.3 U	2.2 U	2 U	2.3 U	1 J
gamma-Chlordane	540	NA		2.3 U	2.2 U	2 U	1.8 J	2.3 U

Table 3.3-1

Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID:	OM-SS01	OM-SS02	OM-SS03	OM-SS04	OM-SS04/D
			Date:	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003
			Depth:	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in
TAL Metals and Mercury (mg/Kg)								
Aluminum	SB	NA		19200	7840	4070	12300	15400
Arsenic	7.5 or SB	3-12 (NYS BG)		5.3	1.1 U	1.1 B	4.4	6.3
Barium	300	15-600		186	29.6 B	15.2 B	153	158
Beryllium	0.16 or SB	0-1.75		0.97 B	0.3 B	0.22 B	0.64 B	0.77 B
Cadmium	1 or SB	0.1-1		0.14 U	0.13 U	0.28 B	0.13 U	0.14 U
Calcium	SB	130-35000 (NYS BG)		23200	2450	22200	17700	31300
Chromium	10 or SB	1.5-40 (NYS BG)		32.7	5.3	4	22	26.4
Cobalt	30 or SB	2.5-60 (NYS BG)		20.8	4.4 B	3.2 B	13.9	15.7
Copper	25 or SB	1-50		27.4	5.7 B	18.7	26.6	31.3
Iron	2000 or SB	2000-550000		31300	10300	7350	22700	28800
Lead	SB or 200 - 500	200-500		20.2	8.7	15.5	13	15.9
Magnesium	SB	100-5000		9500	1600	12000	7810	12000
Manganese	NA	50-5000		1000	122	135	668	728
Nickel	13 or SB	0.5-25		38.5	5.3 B	5.1 B	31.3	35.7
Potassium	SB	8500-43000 (NYS BG)		2430 J	244 B	324 B	1800 J	2170 J
Selenium	2 or SB	0.1-3.9		0.52 U	0.57 BJ	0.43 UJ	0.49 UJ	0.73 BJ
Sodium	SB	6000-8000		149 U	138 U	175 B	167 B	151 U
Vanadium	150 or SB	1-300		42.2	16.2	10.6 B	27.4	32.2
Zinc	20 or SB	9-50		84.3	31.8	1150	70.9	79
Total Cyanide (mg/Kg)								
Cyanide	NA	NA		0.29	0.23	0.34	0.16 U	0.16 U

Table 3.3-1

Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Old Moreau Dredge Spoils Area/NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Eastern United States background values.

(3) Screening value for chlordane.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

BG = Background.

/D = Duplicate sample.

in = Inches.

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

MDL = Method Detection Limit

mg/Kg = Milligrams per kilogram.

NA = Not applicable/available.

NYS = New York State.

NYSDEC = New York State Department of Environmental Conservation.

OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

PCB = Polychlorinated biphenyl.

R = The data is unusable.

SB = Site background.

SS = Surface soil sample.

TAL = Target Analyte List.

TCL = Target Compound List.

U = The analyte was analyzed for but not detected at the value reported.

UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/Kg = Micrograms per kilogram.

- = Sample was not analyzed for this parameter.

520

Shaded cells with bold type exceed the NYSDEC screening value (except for metals).

Table 3.3-2
Analytical Data Summary of Detected Analytes for Subsurface Soil Samples
from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID: OM-GP01-SB OM-GP02-SB OM-GP03-SB OM-GP04-SB OM-GP05-SB1					
			Date:	10/2/2003	10/2/2003	10/2/2003	10/2/2003	10/2/2003
			Depth:	11 - 13 ft	8 - 10 ft	4.25 - 5.75 ft	12.8 - 14.8 ft	11 - 13 ft
TCL Volatile Organic Compounds (µg/Kg)								
Acetone	200	NA		10 U	10 UJ	10 U	15	10 U
Toluene	1500	NA		1 J	10 UJ	1 J	10 U	10 U
Trichlorofluoromethane	NA	NA		0.7 J	1 J	0.8 J	10 U	10 U
TCL Pesticide and PCBs (µg/Kg)								
4,4'-DDT	2100	NA		4.6 U	4.7 U	4.4 U	4 U	3.4 U
TAL Metals and Mercury (mg/Kg)								
Aluminum	SB	NA		7660	17900	19500	14100	5230
Arsenic	7.5 or SB	3-12 (NYS BG)		3	4.8	4.7	0.99 U	1.8 B
Barium	300	15-600		79.8	184	207	62.8	31.9 B
Beryllium	0.16 or SB	0-1.75		0.42 B	0.94 B	1.1 B	0.52 B	0.29 B
Calcium	SB	130-35000 (NYS BG)		12700	54500	34600	2880	2190
Chromium	10 or SB	1.5-40 (NYS BG)		11.5	28.2	29.1	12.5	3.5
Cobalt	30 or SB	2.5-60 (NYS BG)		7.9 B	15.4	16.9	5.7	4.6 B
Copper	25 or SB	1-50		14.3	30.7	31.2	10.8 J	6 BJ
Iron	2000 or SB	2000-550000		16300	31600	35100	13800	12300
Lead	SB or 200 - 500	200-500		5.4	13.4	13.6	3.8	1.6 J
Magnesium	SB	100-5000		5390	13100	12500	2500	1960
Manganese	NA	50-5000		235	681	678	54	195
Nickel	13 or SB	0.5-25		15.4	39.5	44.3	9.7	5.8 B
Potassium	SB	8500-43000 (NYS BG)		1170 B	3190 J	3390 J	576 B	403 B
Selenium	2 or SB	0.1-3.9		1.6 J	0.53 UJ	0.52 UJ	0.87 BJ	0.6 U
Sodium	SB	6000-8000		195 B	190 B	220 B	123 U	174 U
Vanadium	150 or SB	1-300		18.4	31.8	35.3	26.1	10.7 B
Zinc	20 or SB	9-50		44.2	84.2	93.3	38	37.1

Table 3.3-2

**Analytical Data Summary of Detected Analytes for Subsurface Soil Samples
from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site**

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID: OM-GP05-SB2 Date: 10/2/2003 Depth: 17 - 18.6 ft
TCL Volatile Organic Compounds (µg/Kg)			
Acetone	200	NA	25 U
Toluene	1500	NA	10 U
Trichlorofluoromethane	NA	NA	10 U
TCL Pesticide and PCBs (µg/Kg)			
4,4'-DDT	2100	NA	1.8 J
TAL Metals and Mercury (mg/Kg)			
Aluminum	SB	NA	4260
Arsenic	7.5 or SB	3-12 (NYS BG)	7.1
Barium	300	15-600	82.8
Beryllium	0.16 or SB	0-1.75	0.24 B
Calcium	SB	130-35000 (NYS BG)	1770
Chromium	10 or SB	1.5-40 (NYS BG)	3.6
Cobalt	30 or SB	2.5-60 (NYS BG)	11 B
Copper	25 or SB	1-50	7.6 J
Iron	2000 or SB	2000-550000	24600
Lead	SB or 200 - 500	200-500	2.9 J
Magnesium	SB	100-5000	1520
Manganese	NA	50-5000	106
Nickel	13 or SB	0.5-25	10.4
Potassium	SB	8500-43000 (NYS BG)	349 B
Selenium	2 or SB	0.1-3.9	0.48 U
Sodium	SB	6000-8000	138 U
Vanadium	150 or SB	1-300	10.9 B
Zinc	20 or SB	9-50	54.2

Table 3.3-2
Analytical Data Summary of Detected Analytes for Subsurface Soil Samples
from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Eastern United States background values.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

BG = Background.

/D = Duplicate sample.

ft = Feet.

in = Inches.

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

MDL = Method Detection Limit

mg/Kg = Milligrams per kilogram.

NA = Not applicable/available.

NYS = New York State.

NYSDEC = New York State Department of Environmental Conservation.

OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

PCB = Polychlorinated biphenyl.

R = The data is unusable.

SB = Site background.

-SB = Subsurface soil sample.

TAL = Target Analyte List.

TCL = Target Compound List.

U = The analyte was analyzed for but not detected at the value reported.

UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/Kg = Micrograms per kilogram.

Table 3.3-3
Analytical Data Summary of Detected Analytes for Surface Water Samples
at the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

			Sample ID:	OM-SW01	OM-SW02	OM-SW05	OM-SW07
			Date:	9/30/2003	9/30/2003	9/30/2003	10/1/2003
Analyte	NYSDEC CLASS C (1)	NYSDEC CLASS D (2)					
TCL Semivolatile Organic Compounds (µg/L)							
Bis(2-ethylhexyl)phthalate	0.6 for A(C)	NA	10 U	10 U	10 U	3 J	
TAL Metals and Mercury (µg/L)							
Aluminum	100 for A(C)	NA	105 B	162 B	19 U	19 U	
Barium	NA	NA	58.2 B	27.9 B	11.8 B	10.7 B	
Calcium	NA	NA	84400	25300	11400	10100	
Chromium	CV	CV	1.7 B	1.6 B	1.1 U	1.1 U	
Cobalt	5 for A(C)	110 for A(A) (g)	2.2 B	1.4 U	1.7 B	2.2 B	
Copper	CV	CV	2.8 B	5.5 B	1.2 U	1.2 U	
Iron	300 for A(C)	300 for A(A)	560	950	372	323	
Lead	CV	CV	2.6 U	6.1	2.6 U	2.6 U	
Magnesium	NA	NA	15800	5190	2090 B	1680 B	
Manganese	NA	NA	90.6	138	55.4	43.1	
Nickel	CV	CV	4.5 B	1.8 U	1.8 U	1.8 U	
Potassium	NA	NA	1660 B	779 B	492 B	776 B	
Sodium	NA	NA	10300 J	7140 J	6820 J	254000 J	
Vanadium	14 for A(C)	190 for A(A)	3.1 B	2.6 B	2.1 B	1.6 U	
Zinc	CV	CV	140 J	177 J	33.5 J	17.3 B	
Mercury	0.0007 for H(FC)	0.0007 for H(FC)	0.13 B	0.1 U	0.1 U	0.1 U	
Anions (mg/L)							
Chloride	NA	NA	6.6	9.87	10.8	11.1	
Fluoride	CV	CV	0.149	0.0914 J	0.0813 J	0.092 J	
Nitrate-N	NA	NA	0.111	0.177	0.182	0.2	
Sulfate	NA	NA	29.8	15.7	10.4	10.7	
Hardness (mg/L)							
Hardness (As CaCO ₃)	NA	NA	440	235	185	175	

Table 3.3-3
Analytical Data Summary of Detected Analytes for Surface Water Samples
at the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class C Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998. Only sample OM-SW07 is screened against these values.

(2) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class D Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998. All the samples except OM-SW07 are screened against these values.

(g) Guidance value used.

Key:

- A(A) = Standard/guidance value is for the protection of fish survival (fresh waters).
- A(C) = Standard/guidance value is for the protection of fish propagation (fresh waters).
- B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
- CV = Value calculated based on hardness as per NYSDEC TOGS 1.1.1, 1998.
- /D = Duplicate sample.
- J = The reported value is an estimated quantity.
- JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.
- H(FC) = Standard/guidance value is for the protection of human consumption of fish (fresh waters).
- mg/L = Milligrams per liter.
- NA = Not applicable/available.
- NYS = New York State.
- NYSDEC = New York State Department of Environmental Conservation.
- OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.
- SW = Surface water sample.
- TAL = Target Analyte List.
- TCL = Target Compound List.
- U = The analyte was analyzed for but not detected at the value reported.
- UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
- µg/L = Micrograms per liter.
- 3 J** Shaded cells with bold type exceed the NYSDEC Standard or Guidance Value (except for metals).

Table 3.3-4
Analytical Data Summary of Detected Analytes for Sediment Samples
from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

Analyte	NYSDEC Screening Criteria (1),(2)	Sample ID: Date:	OM-SE01 9/30/03	OM-SE02 9/30/03	OM-SE03 9/30/03	OM-SE04 9/30/03	OM-SE05 9/30/03	OM-SE06 9/30/03	OM-SE07 10/1/03
TCL Volatile Organic Compounds (µg/Kg)									
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA		13 U	1 J	0.8 J	14 U	29 UJ	15 U	10 U
Chloromethane	NA		13 U	1 J	14 U	14 U	29 UJ	15 U	10 U
TCL Semivolatile Organic Compounds (µg/Kg)									
Acetophenone	NA		530 U	240 J	520 U	450 U	870 UJ	570 U	420 U
Benzaldehyde	NA		530 U	720 UJ	520 U	450 U	870 UJ	420 J	420 UJ
Benzo(a)anthracene	CV		530 U	190 J	520 U	450 U	430 J	570 U	420 U
Benzo(a)pyrene	NA		530 U	190 J	520 U	450 U	450 J	570 U	420 U
Benzo(b)fluoranthene	NA		530 U	160 J	520 U	450 U	470 J	570 U	420 U
Benzo(g,h,i)perylene	NA		530 U	720 UJ	520 U	450 U	270 J	570 U	420 U
Benzo(k)fluoranthene	NA		530 U	220 J	520 U	450 U	390 J	570 U	420 U
Bis(2-Ethylhexyl)Phthalate	CV		410 J	390 J	520 U	450 U	340 J	570 U	420 U
Chrysene	NA		530 U	250 J	520 U	450 U	550 J	570 U	420 U
Fluoranthene	CV		530 U	310 J	520 U	450 U	720 J	570 U	420 U
Indeno(1,2,3-cd)pyrene	NA		530 U	720 UJ	520 U	450 U	350 J	570 U	420 U
Phenanthrene	CV		530 U	720 UJ	520 U	450 U	290 J	570 U	420 U
Pyrene	CV		530 U	370 J	520 U	450 U	750 J	570 UJ	420 UJ
TCL Pesticide and PCBs (µg/Kg)									
4,4'-DDE	NA		14 J	40 J	5.2 U	5.7 JN	46 J	4.9 J	4.2 U
Aroclor-1242	CV		53 U	19000 J	52 U	45 U	87 UJ	57 U	42 U
Aroclor-1248	CV		1600 J	72 UJ	130 J	360	2600 J	520	440 J
Aroclor-1254	CV		53 U	3300 J	52 U	110	3800 J	57 U	42 U
Aroclor-1260	CV		93 J	780 J	52 U	45 U	87 UJ	57 U	42 U
beta-BHC	CV		2.7 U	3.7 UJ	2.7 U	7.8 J	4.5 UJ	2.9 U	2.2 U
Dieldrin	CV		14	49 J	1.8 J	4.6 JN	49 J	5.7 U	3 J
Endosulfan I	CV		4 R	22 JN	1 J	5.8 J	15 R	4.4 J	2.2 U
Endosulfan Sulfate	NA		5.3 U	7.2 UJ	5.2 U	4.5 U	38 J	5.7 U	4.2 U
gamma-Chlordane	CV		2.7 U	3.7 UJ	2.7 U	2.3 U	4.5 UJ	2.9 U	3.5

Table 3.3-4
Analytical Data Summary of Detected Analytes for Sediment Samples
from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

Analyte	NYSDEC Screening Criteria (1)		Sample ID:	OM-SE01	OM-SE02	OM-SE03	OM-SE04	OM-SE05	OM-SE06	OM-SE07
	Lowest Effect (2)	Severe Effect (2)	Date:	9/30/03	9/30/03	9/30/03	9/30/03	9/30/03	9/30/03	10/1/03
TAL Metals and Mercury (mg/Kg)										
Aluminum	NA	NA		10300	10700	16100	5040	7380	4090	4240
Antimony	2.0	25		2.8 B	4.5 B	2 U	2 U	3.8 B	2.4 U	1.9 U
Arsenic	6.0	33		2.2 B	2.8 B	2.5 B	1.2 U	2.5 B	1.9 B	4.6
Barium	NA	NA		86.3	93.3	110	161	52.1 B	277	56
Beryllium	NA	NA		0.46 B	0.49 B	0.71 B	0.21 B	0.3 B	0.2 B	0.26 B
Cadmium	0.6	9		0.89 B	10.4	0.14 U	0.14 U	8.3	0.17 U	0.13 U
Calcium	NA	NA		10800	4800	6220	4140	2570	6180	13500
Chromium	26	110		26.4 J	214 J	15.5 J	5.5 J	275 J	4.5	15.5
Cobalt	NA	NA		7.4 B	9.9 B	10.2 B	11.2 B	6 B	12.4 B	5 B
Copper	16	110		24.8	52.8	18.7	6.9 B	47.6	5.3 B	14.6
Iron	20000	40000		13900	14000	21100	41200	7230	34300	23400
Lead	31	110		38	238	13.4	1.5 J	271	4.7	33.5
Magnesium	NA	NA		5640	3070	3650	1470	1290 B	1380 B	1870
Manganese	460	1100		142	150	132	1010	70.4	3860	216
Nickel	16	50		17.7	20.6	19.6	13.4	14.5	15.1	9.3 B
Potassium	NA	NA		714 B	691 B	1080 B	429 B	267 B	318 B	346 B
Selenium	NA	NA		0.61 U	1.4 BJ	0.76 BJ	0.54 U	0.83 BJ	0.64 U	0.51 UJ
Sodium	NA	NA		291 B	270 B	150 U	155 U	310 B	184 U	147 U
Vanadium	NA	NA		31.6	46.7	33.4	10.4 B	43.3	9.5 B	11.9 B
Zinc	120	270		1650	981	75.6	31.1	288	36.2	115
Mercury	0.15	1.3		0.07 U	0.99	0.07 U	0.07 U	0.63	0.08 U	0.1 B
Total Cyanide (mg/Kg)										
Cyanide	NA	NA		0.89	3.1	0.27	0.16 U	11	1 L	0.4
Total Organic Carbon (mg/Kg)										
Total Organic Carbon	NA	NA		28000	51000	47000	6900	73000	38000	8200
Percent Solids (%)										
Percent Solids	NA	NA		54	37	63	75	28	53	92

Table 3.3-4
Analytical Data Summary of Detected Analytes for Sediment Samples
from the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

(1) New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Technical Guidance for Screening Contaminated Sediments, 1999. The benthic aquatic life chronic toxicity protection level was used.

(2) As per the 1999 NYSDEC Guidance, the screening criteria for organic contaminants in sediments are calculated based on sample Total Organic Carbon concentration. However, two levels of risk are established for metals contamination in sediments (Lowest Effect Level and Severe Effect Level).

Key:

- B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
- CV = Value calculated based on total organic carbon as per NYSDEC Guidance.
- J = The reported value is an estimated quantity.
- JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.
- L = The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported.
- mg/Kg = Milligrams per kilogram.
- NA = Not applicable/available.
- NYS = New York State.
- NYSDEC = New York State Department of Environmental Conservation.
- OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.
- PCB = Polychlorinated biphenyl.
- R = The data is unusable.
- SE = Sediment sample.
- TAL = Target Analyte List.
- TCL = Target Compound List.
- U = The analyte was analyzed for but not detected at the value reported.
- UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
- µg/Kg = Micrograms per kilogram.
- % = Percent.

1600 J Shaded cells with bold type exceed the NYSDEC guidance value (except for metals).

Table 3.3-5

Analytical Data Summary of Detected Analytes for Groundwater Samples from Temporary Wells
at the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site

Analyte	NYSDEC CLASS GA (1)	Sample ID:	OM-GP01-GW	OM-GP02-GW	OM-GP03-GW	OM-GP04-GW	OM-GP05-GW
		Date:	10/16/2003	10/16/2003	10/15/2003	10/15/2003	10/14/2003
		EPA MCLs (2)					
TCL Semivolatile Organic Compounds (µg/L)							
Caprolactam	NA	NA	1900	3 J	3600	44	10 U
Diethylphthalate	50	NA	3 J	10 U	9 J	11 U	10 U
Di-n-butylphthalate	50	NA	10 U	10 U	2 J	11 U	10 U
TCL Pesticide and PCBs (µg/L)							
Aroclor-1248	0.09 (3)	0.5	1 U	1 U	1 UJ	1.6	1 U
Endrin Ketone	5	2 (5)	0.068 J	0.1 U	0.1 UJ	0.1 U	0.1 U
TAL Metals and Mercury (µg/L)							
Aluminum	NA	50-200 (s)	30.3 B	85.7 B	689	95.1 B	71.9 B
Arsenic	25	10	5.8 U	5.8 U	5.8 U	9.2 B	5.8 U
Barium	1000	2000	78.9 B	114 B	95.7 B	38.8 B	225
Beryllium	3 (g)	4	0.1 U	0.12 B	0.16 B	0.1 U	0.1 U
Calcium	NA	NA	60200	76100	78600	205000	106000
Cobalt	NA	NA	4.8 B	10.5 B	3.7 B	5.6 B	14.3 B
Copper	200	1300 (a)	3.9 B	2.8 B	4.7 B	1 U	1 U
Iron	300 (4)	300 (s)	27.9 U	27.9 U	923	84300	99900
Magnesium	35000 (g)	NA	91500	114000	81700	33500	21300
Manganese	300 (4)	50 (s)	59.4	967	819	10600 J	4450 J
Nickel	100	NA	2.3 U	4.6 B	6.1 B	2.3 U	3.2 B
Potassium	NA	NA	2750 B	8320 J	3980 B	899 B	2390 B
Selenium	10	50	3.8 U	5.2 J	5.6 J	3.8 U	3.8 U
Sodium	20000	NA	23800 J	55500 J	54200 J	2950 B	22700
Vanadium	NA	NA	0.9 U	0.9 U	0.9 U	2 B	2.6 B
Zinc	2000 (g)	5000 (s)	37.2	33	35.2	19.3 B	18.9 B

Table 3.3-5
Analytical Data Summary of Detected Analytes for Groundwater Samples from Temporary Wells
at the Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class GA Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998.

(2) EPA National Primary and Secondary Drinking Water Standards, 2002.

(3) Screening value for sum of PCBs detected.

(4) Screening value is for sum of Iron and Manganese is 500 µg/L.

(5) Screening value is for endrin.

(a) Action level is used in lieu of MCL.

(g) Guidance value used.

(s) Secondary standard used.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

/D = Duplicate sample.

EPA = Environmental Protection Agency.

GP = Boring.

GW = Groundwater sample.

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

MCL = Maximum Contaminant Level.

NA = Not applicable/available.

NYS = New York State.

NYSDEC = New York State Department of Environmental Conservation.

OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.

PCB = Polychlorinated biphenyl.

TAL = Target Analyte List.

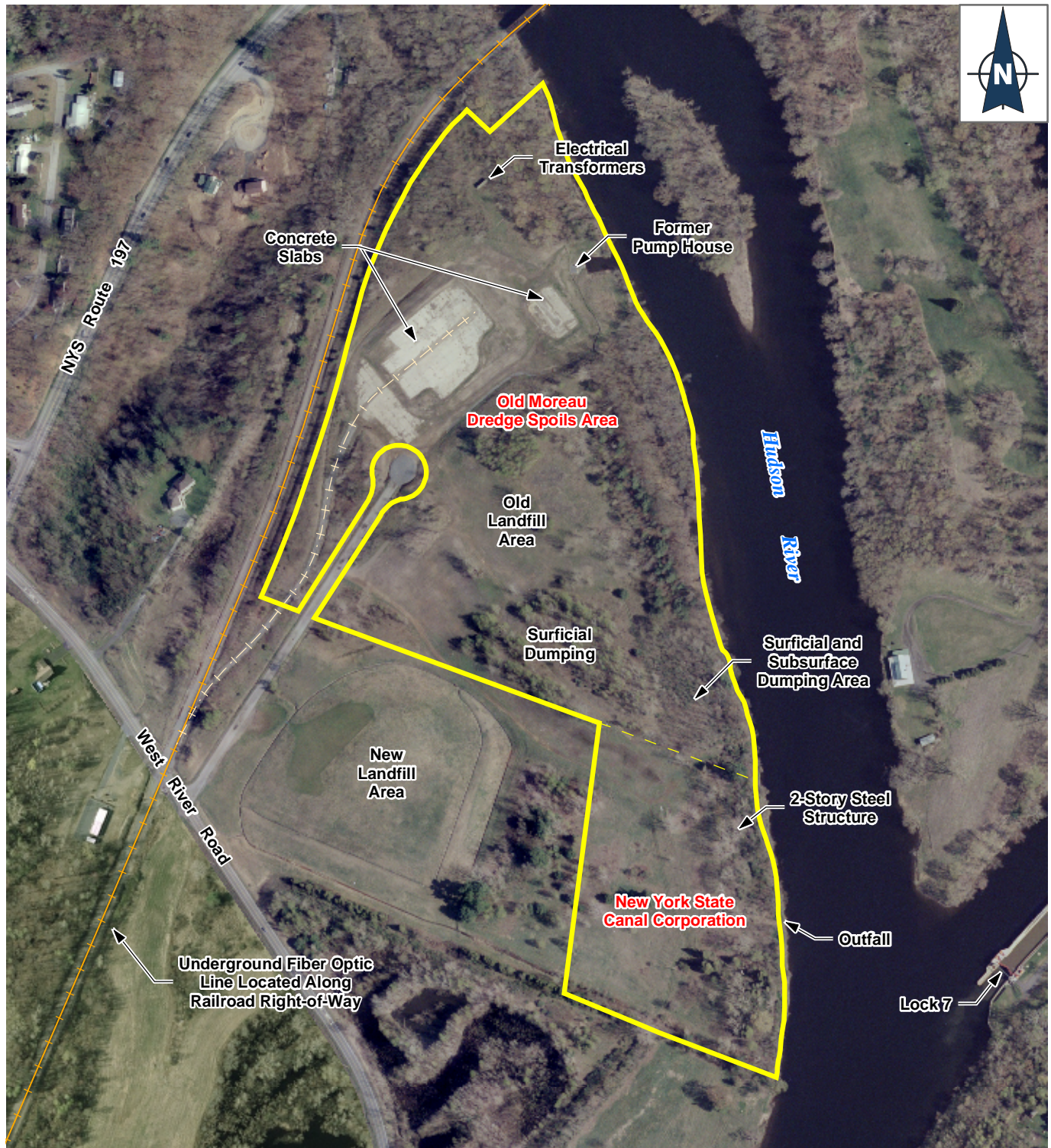
TCL = Target Compound List.

U = The analyte was analyzed for but not detected at the value reported.

UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/L = Micrograms per liter.

1.6 Shaded cells with both bold type and underline, exceed both screening values (except for metals).

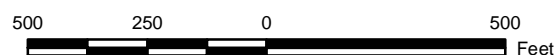


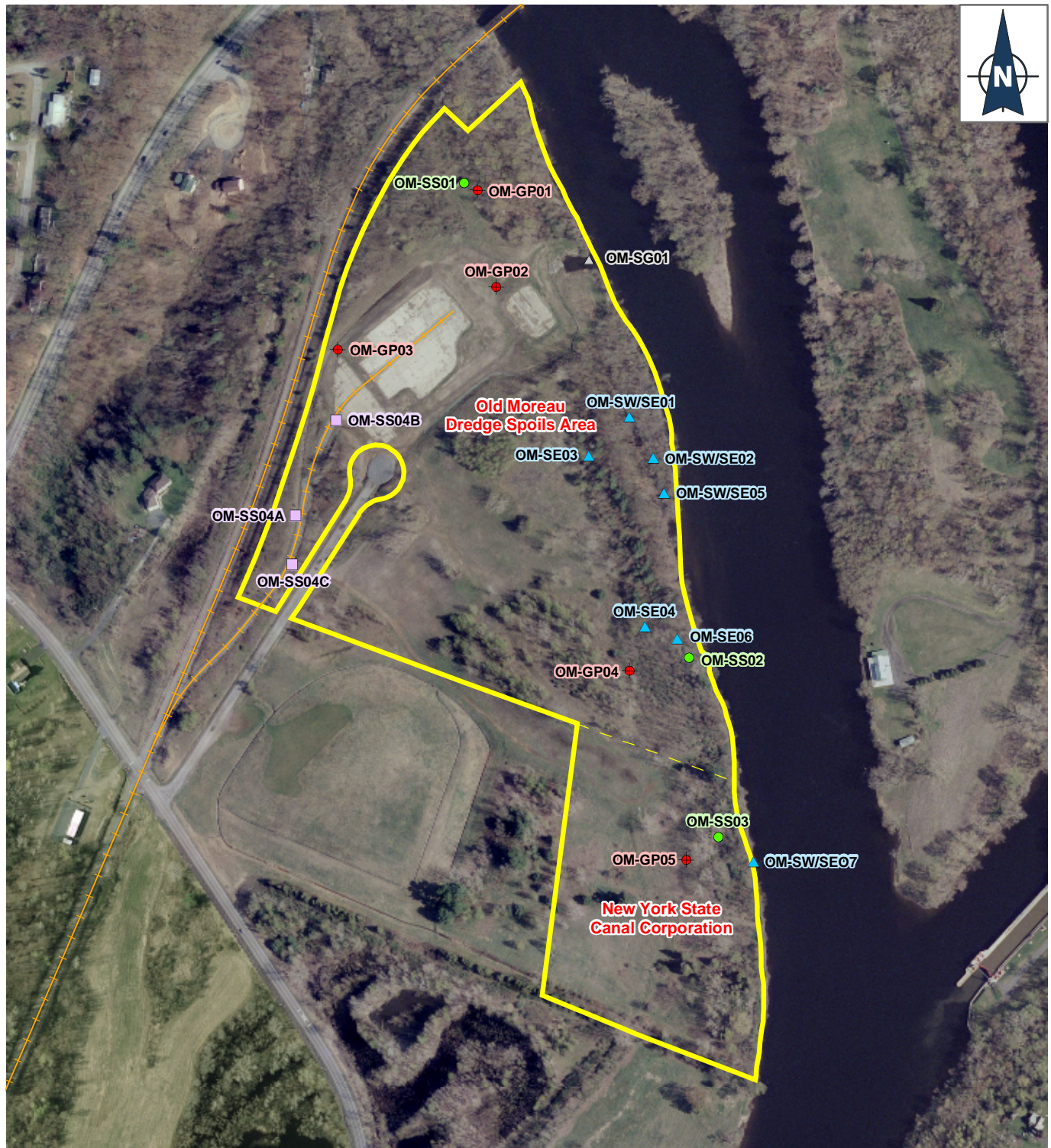
LEGEND

- Approximate Site Boundary
- Tax Parcel Boundary
- Active Railroad
- Abandoned Railroad (Buried)

Hudson River
PCBs SUPERFUND SITE

Figure 2-1
Key Site Features
Old Moreau Dredge Spoils Area /
New York State Canal Corporation



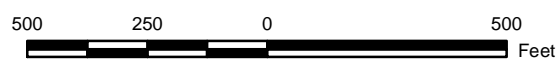


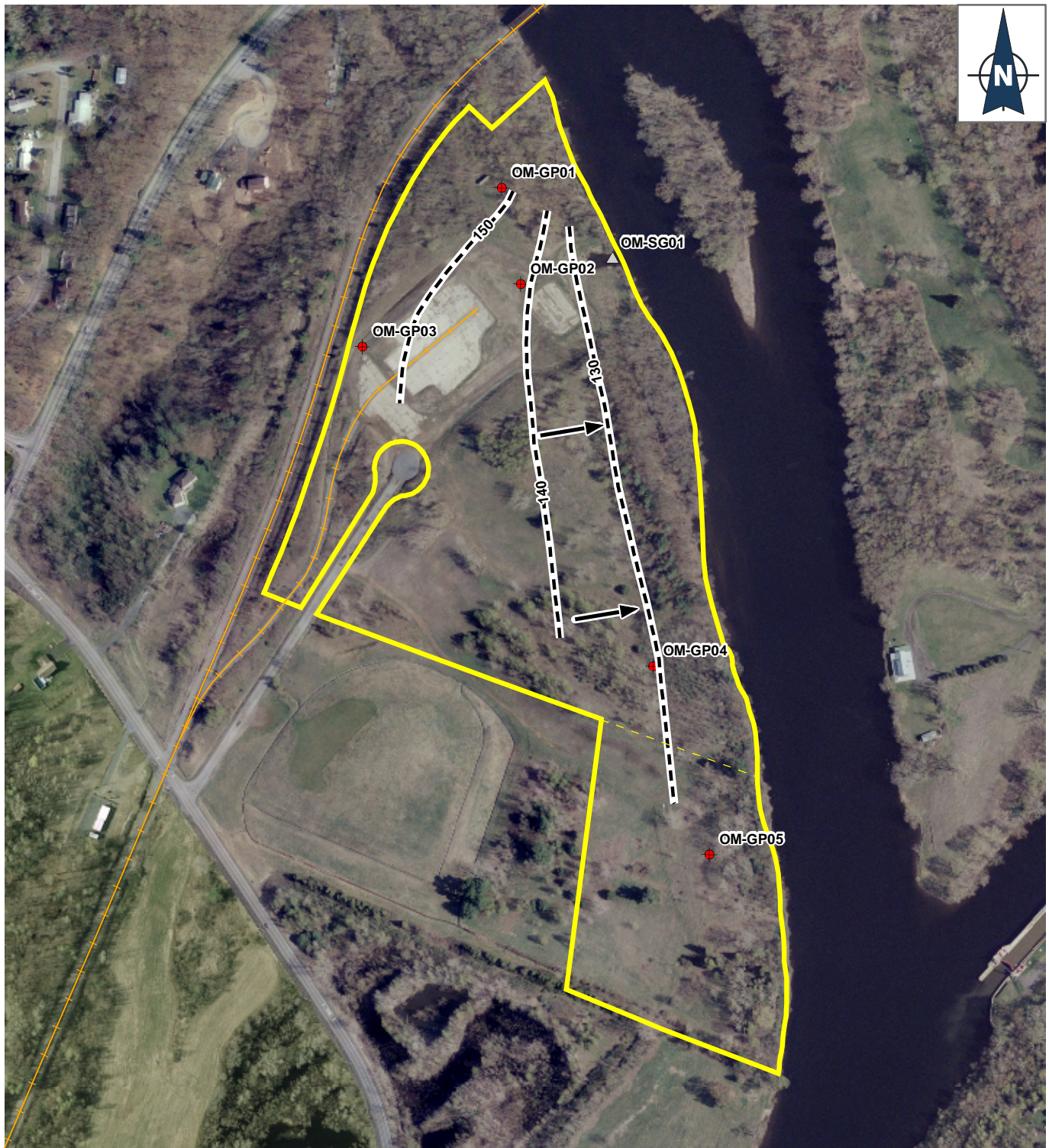
LEGEND

- Geoprobe Soil Boring
- Geoprobe Soil Boring & Temporary Well
- Geoprobe & Geotechnical Boring
- Geotechnical Boring
- Surface Soil
- Soil Sample Adjacent to Railroad
- Surface Water / Sediment
- Stream Gauge
- Railroad
- Potential Site Boundary

Hudson River
PCBs SUPERFUND SITE

Figure 3-1
Sample Locations
Old Moreau Dredge Spoils Area /
New York State Canal Corporation





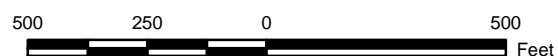
LEGEND

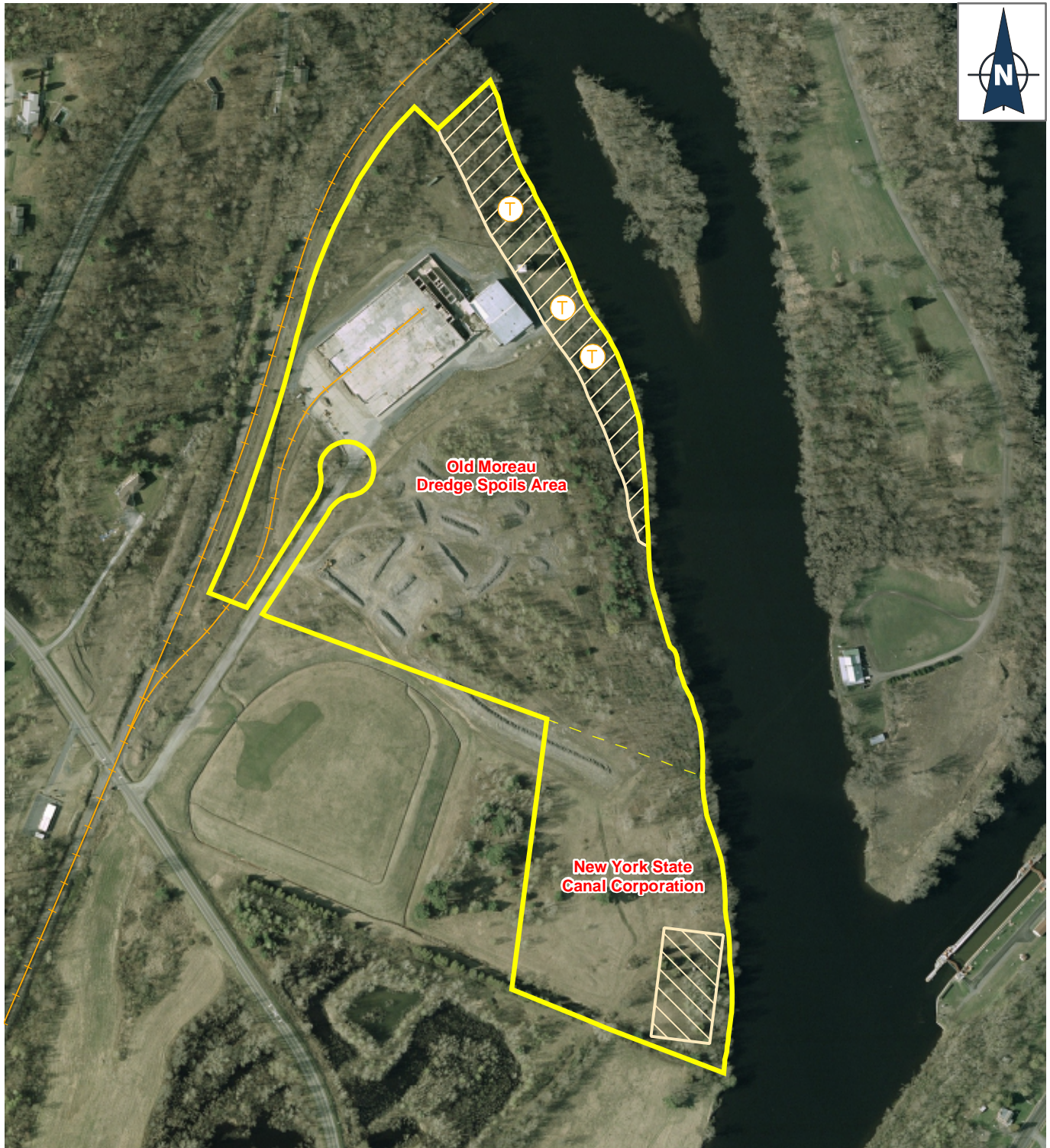
- Groundwater Contour
- Temporary Well
- △ Stream Gauge
- Railroad
- Potential Site Boundary
- Direction of Groundwater Flow

Water Level Elevations Measured on 11/6/2003
10 ft. Contour Interval



Figure 3-2
Overburden Groundwater Contour Map
Old Moreau Dredge Spoils Area / NYS Canal Corporation





LEGEND

Potential Site Boundary

Archaeological Testing Method

Backhoe Test

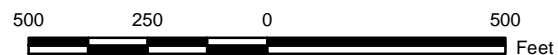
Shovel Test

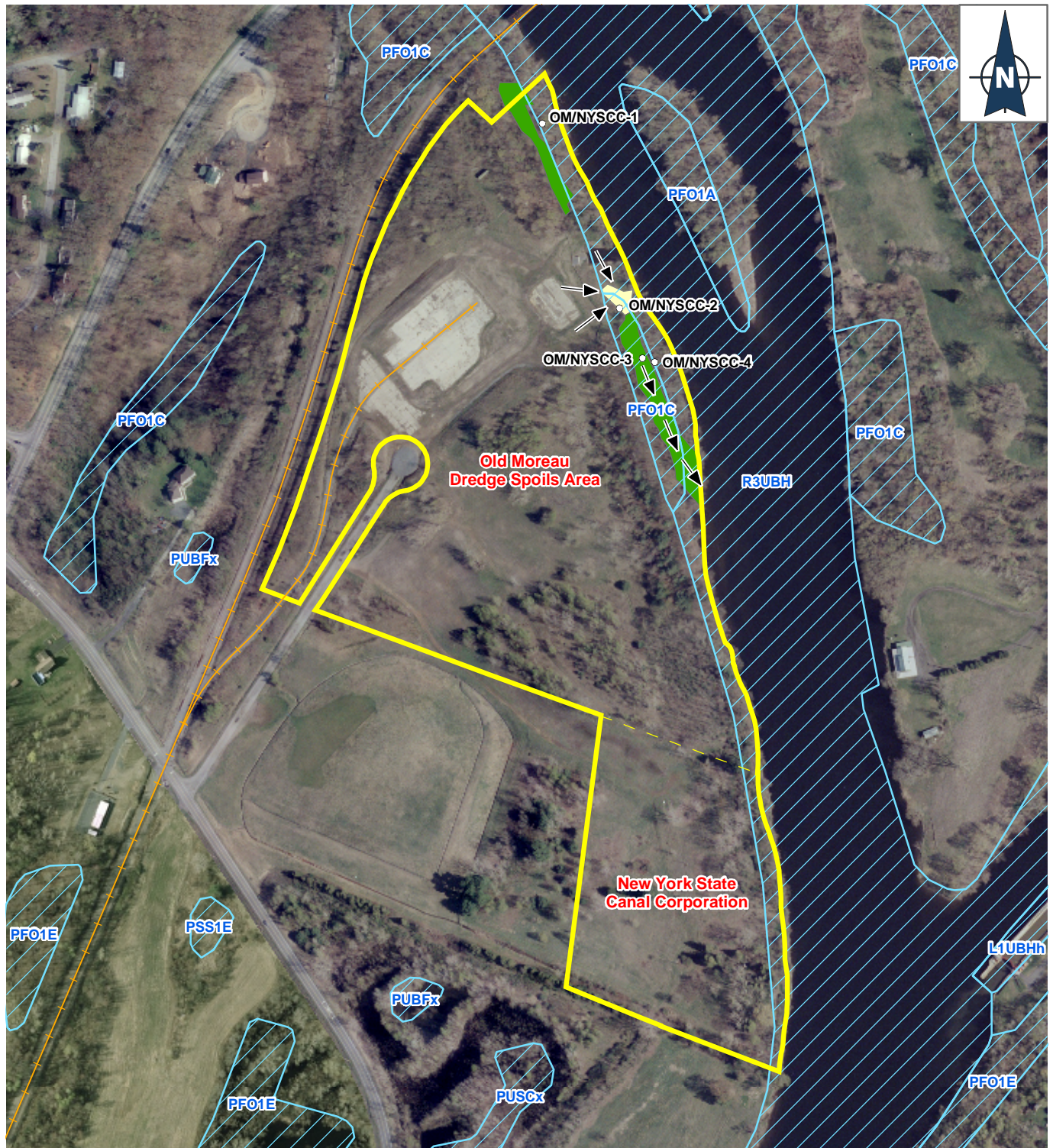
Backhoe & Shovel Test

T Backhoe Trench Locations



Figure 6-1
Field Sampling Areas
Phase I B Cultural Resources Investigation
Old Moreau Dredge Spoils Area /
New York State Canal Corporation





LEGEND

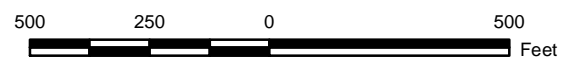
- NYS DEC Mapping
- National Wetland Inventory Mapping

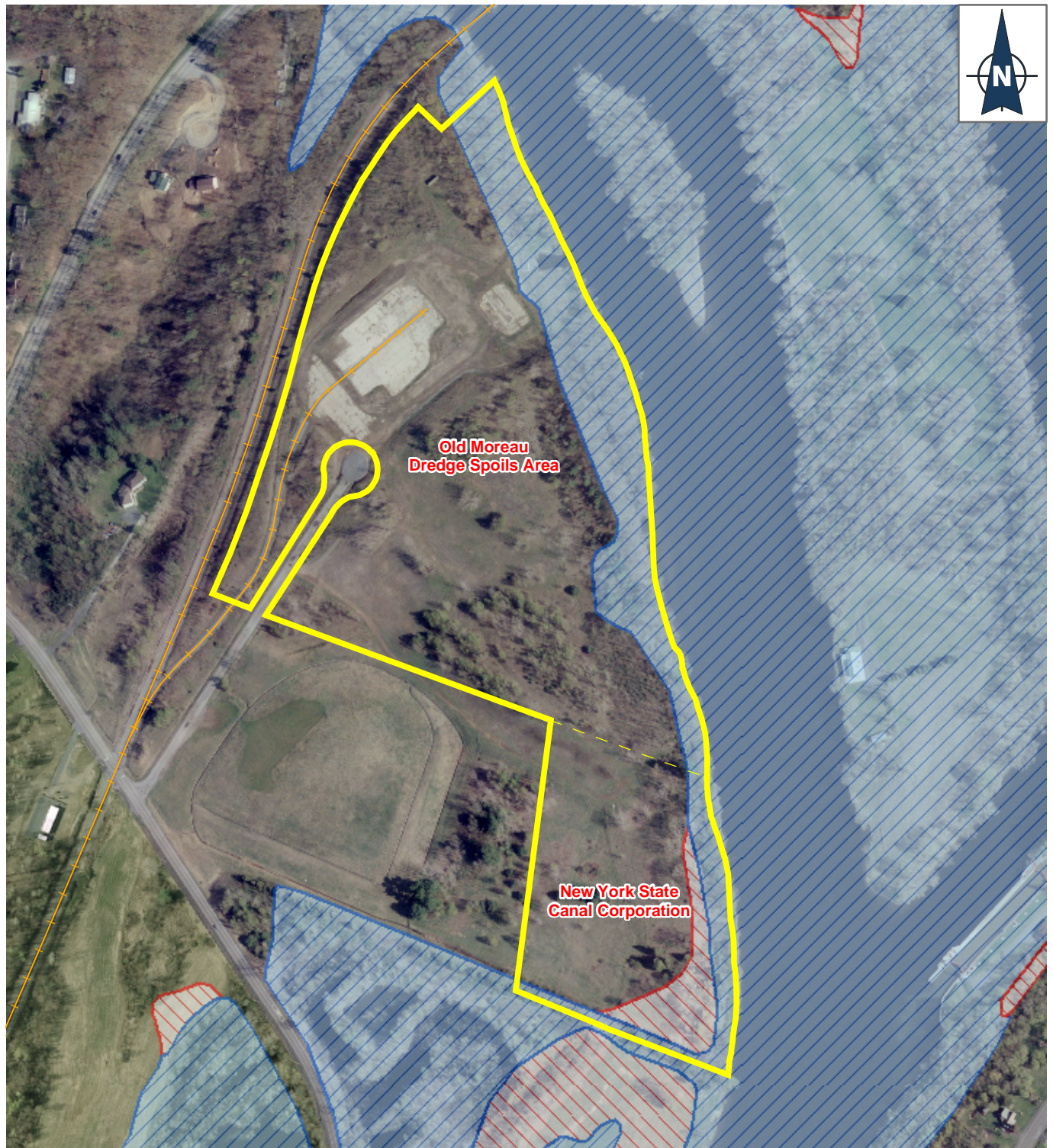
Delineated Wetlands

- Emergent
- Forested
- Observation Plots
- Direction of Drainage Flow

Hudson River
PCBs SUPERFUND SITE

Figure 7-1
Wetland Locations
Old Moreau Dredge Spoils Area /
New York State Canal Corporation



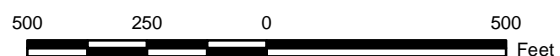


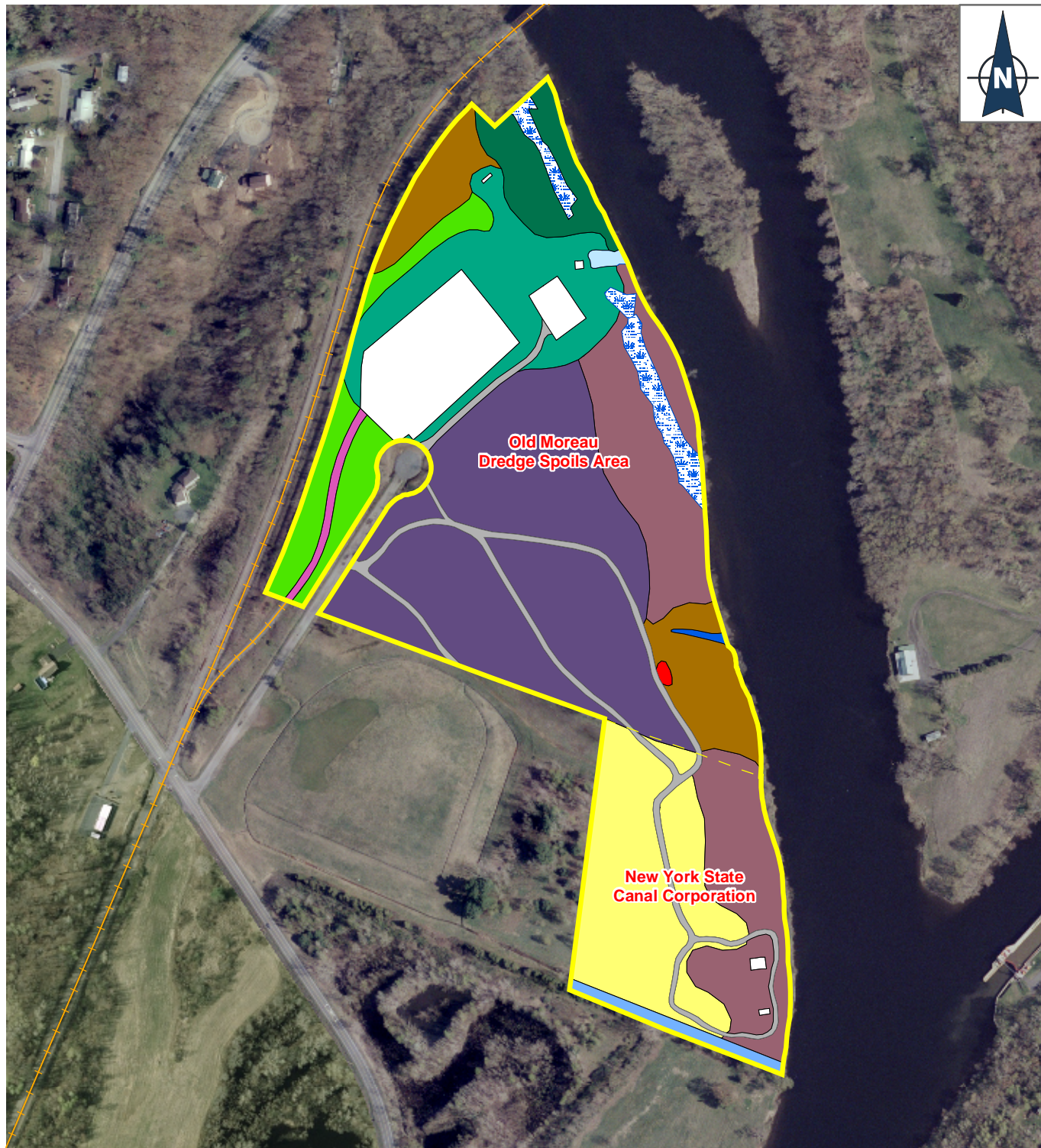
LEGEND

- Potential Site Boundary
- FEMA Floodplain**
- 100 Year Floodplain
- 500 Year Floodplain

Hudson River
PCBs SUPERFUND SITE

Figure 8-1
FEMA Floodplain Mapping
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Ecological Communities

- | | |
|---------------------------------------|----------------------------------|
| Unpaved Road | Backwater Slough |
| Wetland | Dredge Spoils / SNH / SOF |
| Successional Northern Hardwoods (SNH) | Junkyard |
| Successional Old Field (SOF) | Pine-Northern Hardwood Forest |
| Successional Shrubland | Maple-Basswood Rich Mesic Forest |
| Intermittent Stream | Railroad |
| Ditch | Rural Structure Exterior |
| | Mowed Pathway |

Hudson River
PCBs SUPERFUND SITE

Figure 10-1
Site Ecological Communities
Old Moreau Dredge Spoils Area /
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